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THE PREVENTION OF HEART DISEASE.*

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A generation ago to discuss the prevention of heart disease would have seemed to most people a useless, idle, and fanciful thing to do. At the present day it is coming to be regarded as a useful, sensible, and farsighted procedure and I welcome this opportunity you have given me to spread a little the gospel of health as some of us workers in the field of heart disease of late years have learned it. But because it has become the vogue to talk of such things, we must not be content simply to utter high sounding phrases and to tell of past accomplishments in other fields. We must take up the specific problem and analyze it in the light of present known facts and of future probabilities and possibilities.

The campaign against tuberculosis began a generation ago and in spite of the shaking of heads of many skeptics along the way its accomplishments are now so obvious that they encourage workers in all other fields, difficult as they may seem to be. Heart disease is at the beginning a much tougher problem than was tuberculosis; it is more complicated and some phases of it appear insoluble at present, but our knowledge and weapons are far more potent than they were a brief generation ago, and rash and reactionary indeed would be the man today who would dare to say "There is no hope." Facts already have proved there is hope, even though accomplishments to date have been but few.

How has this awakening of interest in the prevention of heart disease come about? For manifold reasons. In the first place, heart disease has been more and more recognized as a formidable cause of death and illness at all ages. Secondly, this recognition has been much emphasized by the increased relative importance of heart disease as a cause of mortality and morbidity while other diseases, especially tuberculosis, the dysenteries of infancy, and the more serious infections of childhood and youth (small-pox, diphtheria, typhoid fever), have been more or less controlled. This reminds me of the great interest taken in the so-called soldier's or nervous heart in the recent World War because of the fact that this partially crippling condition then attracted attention for the first time as a result of the prevention of many of the more serious diseases, like typhoid fever, which in former wars absorbed nearly all the interest and efforts of medical officers. And yet without any doubt there was much of the soldier's heart in other wars too; there simply was no time then to study or even to recognize it because of more pressing problems. The third reason for the awakening of interest in heart disease prevention, the cutting off in their prime by degenerative circulatory diseases of important and useful citizens, has focussed the world's attention more and more on heart disease. Fourthly, success in preventive medical measures in other fields has given hope to workers in this field too. And finally, there have already been taken here and there short but successful and promising steps in heart disease prevention.

The relative and absolute importance of the subject of heart disease can be illustrated by

TABLE

DEATH RATES PER 100,000 IN MASSACHUSETTS FOR ALL AGES OF THE TEN MOST FREQUENT CAUSES OF DEATH.

	1906*	1916*	1926*
Heart Disease	186	210	226
Cancer	84	105	126
Pneumonia	177	172	114
Apoplexy	95	97	103
Nephritis	75	93	83
Tuberculosis	211	142	80
Accidents	69	75	68
Prematurity	---	59	44
Diseases of the Arteries	24	58	44
Diarrhea and Enteritis	99	80	20
Total Deaths All Causes	1,676	1,483	1,219

*Average three years.
(Bigelow and Hamblen, *N. E. Jour. Med.*, 1930.)

a table giving some simple statistics. Although these statistics show that heart disease as a

*Read by invitation before the Norfolk County Medical Society, Norfolk, Va., February 17, 1930.

cause of death has been steadily rising in importance in the last generation, two qualifications must be made; first, that this increase is certainly in very large part due to the relative and absolute decrease in certain other important causes of death, and second, that the increase is chiefly in middle and in old age, which in a way is an encouraging rather than a discouraging fact because it is simply another way of saying that the average duration of human life is steadily increasing and that finally degenerative circulatory disease ends the story. Even so we must not be content there. While it appears most urgent to attack and to prevent the diseases that cripple or kill in youth or in middle age we must not lose sight of the possibility of retarding senility. Three score years and ten seem very old to the youngster of fifteen and twenty years but year by year as we ourselves approach that age it does not seem so ancient and we should not rest content to expect to die at seventy. There is much of value to be expected from the wisdom and happiness of healthy old men and old women and if their old age can be extended and preserved in good health, the world will be a better place to live in. Although the average duration of human life has been increased from about twenty years in the Middle Ages, and 40 years in civilized countries one hundred years ago, to 58 years in the United States of America at the present time, there are many indications that after the age of forty years is passed life expectancy has been somewhat reduced. This is an important and often neglected phase of the subject.

We come now to the specific problem of the prevention of heart disease. Enlargement of the heart, valvular lesions and arrhythmias were diagnosed years ago, but for the most part they were not analyzed further. Of course it was realized even then that rheumatic fever and syphilis did cause some of these lesions but they were not added to the diagnosis and little attention was paid to their possible prevention. Also in many cases the causes behind the pathological findings were entirely unknown, for example, hypertension as a cause of cardiac enlargement in the days before blood pressure studies. Then came in our own memory the notable contribution of James Mackenzie and others like him who insisted on the recognition of functional disturbances of the circulation, like heart failure. Here preventive measures have been more and more introduced. By proper regulation of life and the proper use of drugs and other therapeutic measures heart failure and other disorders of function were often held at bay, but the diseased conditions behind these disorders were still sadly neglected.

One of the distinct contributions of this country during the past generation has been the etiological classification of heart disease, that is, the diagnosis according to cause. It has helped to define the problem of the prevention of heart disease, for naturally we cannot intelligently prevent a disease condition until we know its cause. Some may complain that we do not yet know all the causes of heart disease, that in some cases it is impossible to discover the cause, and finally that even if we do know the causes we cannot prevent some of them. These criticisms are very true but they do not mean that we must sit down and fold our hands, saying that heart disease is the will of God and that we can and should do nothing about it. They should stimulate us still more to study the problem and to follow up the little progress already made by further strides, so that we may finally say "We do know all the causes of heart disease, we can make an etiological diagnosis in every case, and we do know the way in which each cause is itself produced." By that time the causes themselves, being better understood, will be in part doubtless preventable, and heart disease will no longer wreak the havoc it does at the present day. An interesting sidelight on the subject of the study of heart disease is the changing attitude that has come even in the last ten years in my own experience. Soon after the World War I was advised not to concentrate all my attention on such a small field in medicine as heart disease and this advice was given me by one of the medical leaders of our day. Last summer another medical leader expressed surprise that I could maintain an active interest in all phases of such a tremendously large subject. Here indeed is a vast field for many workers; it is a difficult one and will demand much thought and toil, but I for one believe that the harvest will be well worth all the labor; I only hope that I may live long enough to see some of the more notable achievements that are bound to come.

The causes of heart disease which should now

be considered one by one from the standpoint of preventive medicine will be presented to you largely according to the time of the life cycle that they appear. This is a convenient and logical approach, but we must leave at the end a compartment labelled "unknown," of which we can say little now except that it carries a rather uncertain number of causes; perhaps 5 to 10 per cent of cardiac patients belong under such a heading. The known causes of heart trouble are (1) congenital defects, (2) the rheumatic infection, (3) malignant endocarditis, (4) syphilis, (5) other infections, (6) the so-called cardiac neurosis, soldier's heart, or neurocirculatory asthenia, not actually heart disease, but still an important cause of more or less disagreeable and sometimes crippling heart trouble, (7) thyroid disease, (8) high blood pressure, (9) certain chronic lung diseases, and (10) arteriosclerosis of the coronary arteries.

(1) Defects in the Heart and Blood Vessels at Birth are due to factors little or not at all understood. Fortunately they are found in but a small proportion of cardiac patients (in New England in only 2 per cent); nevertheless hopeless crippling may result and early death is common in many of those affected. The progress of the study of eugenics and of heredity will undoubtedly advance our knowledge of such congenital defects as those that involve the heart and arteries. It is likely that germ cell deficiencies are most important, but other factors like the mother's state of health during pregnancy and foetal infection must be considered. Attention to these matters may conceivably reduce eventually the incidence and seriousness of congenital heart disease. As yet we can do little or nothing in this direction.

(2) The Acute Rheumatic Infection of youth, either in the form of rheumatic fever, or of chorea, or of less well defined nature, is one of the chief causes of heart disease. In some respects it is the most important, for it cripples and kills mainly children and young adults, and in many parts of the world it appears to lead all other causes in damaging the heart. In New England chronic valvular disease resulting from known rheumatic infection or from probable rheumatic infection, when the history is not clear but the heart disease typical, is the most common recognized variety of heart disease. We don't yet know the exact germ that causes the rheumatic infection although several bacteria are now under suspicion and from evidence at hand they almost certainly belong to the streptococcus family. Many investigators are hard at work on the problem of isolating the cause or causes of the rheumatic infection and it does not seem likely that much time will elapse before we are assured of the responsible bacteria. When that day arrives, it is more likely than now that a vaccine can be devised to prevent the disease in susceptible or exposed individuals and perhaps a serum produced to stop the infection when it starts. Various vaccines and serums have already been tried but with disappointing or negligible results.

Can we do anything to control rheumatic heart disease even though we have not yet discovered with certainty its cause? Yes, without a doubt, if we heed certain facts that we already know about the disease. These facts are as follows. In the first place climate plays an important role. In tropical and subtropical countries the rheumatic infection, at least in typical form, is rare, and rheumatic heart disease is apparently uncommon; in countries which have at least for part of the year, wet, cold, and variable weather conditions, the rheumatic infection and rheumatic heart disease are generally very common. Secondly, these disease conditions are more often found among the poorer parts of the population, in the more crowded and less sanitary suburbs of our northern cities where exposure to cold, wet, fatigue, faulty nourishment, and infection is greatest. And finally, these diseases are often found in several members of the same family, indicating a family susceptibility and perhaps a slight contagious element as properties of the rheumatic infection. Bearing these points in mind we may then hope to reduce the occurrence of rheumatic heart disease, this frightful scourge of youth, by recommending better climatic conditions to affected families, by improving economic and living conditions in the cities and countryside too, and perhaps in preventing too close a contact of affected members of a family with the rest of the family. These measures may be undertaken, at least in part, with some hope of success, even before we can control the disease by specific immunological measures.

The matter of removal of the tonsils is still largely one of opinion in spite of the mass of

statistics that has been gathered. It is my own opinion that tonsillectomy should be done routinely in every child or young adult who has had a rheumatic infection or rheumatic heart disease, and in every other young person who has had tonsillar infection or who may be much exposed to rheumatic fever or chorea. It is perhaps but slight protection but it seems worth while. Finally, there is the question of the value of rest in bed and of salicylates in the treatment of the rheumatic infection to try to prevent the complication of heart disease of permanent nature that follows infection in about 80 per cent of the cases of rheumatic fever and in about 40 per cent of the cases of chorea. Although we have little proof of their efficacy it seems wise for the present at least to use them during the acute stage of the disease. As to the value of the routine use of the salicylates, like acetyl-salicylic acid (aspirin), in daily rations in exposed persons or in those who have once had the rheumatic infection to try to prevent the beginning or recurrence of such an infection, we have no knowledge. It may even be injurious to do this because of the possible action of the salicylates in depressing the immune bodies. This is nearly all theory, however, and information is demanded from much practical experience before we can speak with any degree of assurance on this subject.

For some people the rheumatic heart problem is a small one but for us in New England it is of great magnitude.

(3) Malignant Endocarditis which includes both acute and subacute bacterial endocarditis, is almost invariably a fatal condition. Fortunately it is one of the less frequent types of heart disease. It is caused in acute form by any one of a variety of virulent bacteria, such as the pneumococcus, gonococcus, or the staphylococcus aureus or albus, and in subacute form almost always by the streptococcus viridans. The more virulent germs get into the circulation from some diseased area, like a pneumonic lung, an abscess, or other infection anywhere. In such cases the heart infection is a secondary one, often terminal, and not always diagnosable during life. Prevention of such acute bacterial endocarditis depends of course on the prevention of the primary infection like pneumonia or meningitis. Subacute bacterial streptococcus viridans endocarditis on the other hand is another matter. It attacks hearts that are already damaged more often than normal hearts, and such hearts almost always have congenital defects or rheumatic valve lesions. About one in every 25 cases of rheumatic heart disease in youth falls a victim to this fatal complication. Hence the prevention of subacute bacterial endocarditis will depend in large part on the prevention of earlier heart disease of congenital or rheumatic type. In such chronic cases it is well to search for and to remove foci of infection where the streptococcus viridans may gain an entrance to the circulation. For this reason as well as for others, routine tonsillectomy is, I believe, advisable in every patient with chronic rheumatic valvular disease or congenital cardiovascular defects.

At present there is no cure for malignant endocarditis. Whether it would be feasible to try to protect rheumatic heart patients against the streptococcus viridans infection by vaccine therapy is much open to question—perhaps those individuals with very low titer of immune bodies might be so protected. This would be an experimental matter. At least it does seem wise, however, to protect so far as possible against infection and injury any young patient with rheumatic or congenital heart disease as a preventive measure against subacute bacterial endocarditis, since such malignant infection is prone to follow such incidental infection and injury.

(4) Cardiovascular Syphilis is distinctly on the decline in some parts of the world and without much doubt in those regions where syphilis is originally well recognized and treated early and adequately. Syphilitic inflammation of the aorta which is the commonest manifestation of the spirochaetal infection of the circulation, first becomes evident as a rule in middle age; it is always a serious disease and often fatal within a very few years by producing an aneurysm that may rupture, by causing a narrowing of the mouths of the coronary arteries, by overburdening the heart muscle by a rapidly progressive strain from a leak through the damaged aortic valves, or by both of these last named effects. By the time the heart and aortic condition is recognized, the stage of the disease is advanced; as a rule little can then be done, although careful antiluetic therapy sometimes proves effective. It is at the time of the primary lesion, and for the few years after that, that antisyphilitic

treatment should be carried out fully and faithfully to prevent the serious effects that are so apt to appear twenty to thirty years later. It undoubtedly is because of such adequate therapy, in some cases at least, in the past generation that we are now finding a distinct reduction in the occurrence of cardiovascular syphilis. It has been Romberg's experience in Munich, our own at the Massachusetts General Hospital, in Boston, and others that evidences of syphilis of heart and aorta are now only about one-half as frequent as they were 20 years ago.

Here then a distinct advance has been made already in the prevention of heart disease, even though the syphilitic involvement of the circulation is not in all parts of the world one of the most common types of cardiovascular disease. We must not stop here, however; we must spread the gospel of early recognition and adequate treatment of primary syphilis as well as of its prevention in the first place.

(5) Other Infections than those just mentioned rarely cause heart disease. There is one, however, which is dangerous and which does sometimes kill rapidly because of direct involvement of the heart. This is *diphtheria.* Fortunately, after the illness is over there is only very rarely any permanent heart damage, but if the diphtheria is not recognized early and treated adequately, the heart muscle may be badly damaged with resulting acute collapse or death. The beginning of the prevention of diphtheria as well as the early and adequate use of antitoxin in the disease itself are both measures which have marked milestones in the progress of the campaign against heart disease, even though they have little to do with chronic cardiac damage. *Scarlet fever* is rarely complicated by valvular disease, in about one-half of one per cent of the cases; even so it is of obvious importance that this infection be wiped out from the standpoint of heart disease as well as from that of other conditions. The other usual children's diseases like chicken-pox, measles, mumps and whooping cough do not in themselves cause heart disease but they may lower the resistance of the child so that the rheumatic infection can gain a foothold or flare up again if it has once been active.

Tuberculosis a common enough disease still, fortunately rarely attacks the heart. Now and then it does cause serious disease of the pericardium, and so in the campaign against heart disease we welcome also the reduction of tuberculosis.

There are other and rarer infections which involve the heart, such as echinococcus disease. Also in some parts of the world there are local infections seen little elsewhere, like cardiac trypanosomiasis which is reported to be common in Brazil. The prevention of the heart involvement here as in the diseases already discussed rests in the reduction or wiping out of these infections.,

(6) An important cause of heart trouble, even though not of heart disease, is a certain nervous disturbance affecting the circulation indirectly. This is still fundamentally of unknown cause but it is precipitated by nervous strain and physical fatigue in people with very sensitive nervous systems. It is seen most often in young people and during the war was labelled the soldier's heart, effort syndrome, or Neurocirculatory Asthenia. Symptoms of palpitation, heartache, breathlessness, fatigue, giddiness and nervousness are common in such people. In addition there may or may not be any heart disease, but it is usually absent. It perhaps is wrong to consider this condition as heart trouble at all since we are thereby calling attention to but one group of the symptoms and not to the fundamental cause. What it should be called we do not yet know, however. It is important to recognize that it exists in civilian as well as in military life and to make neither too much nor too little of it. A sensible regulation of the life of the affected individual along with plenty of reassurance are the wise measures in treatment. In preventing this disagreeable condition, sensitive nervous persons should avoid and not become involved in the fatiguing, mad and often senseless whirl of business, social and athletic life now the vogue in America. A little idle sitting and reflecting every day with refusal to join in the rush to keep up with the Joneses will prevent the nervous heart more effectively than any amount of medicine.

(7) Disease of the Thyroid Gland causes a small but appreciable amount of heart disease. Early recognition and treatment of too much thyroid secretion (hyperthyroidism or exophthalmic goiter) or of too little thyroid secretion (hypothyroidism or myxoedema) are

excellent preventive measures. Very decided advance is now in progress in this respect and we are seeing less and less of the old worn-out thyroid derelicts often crippled by hopeless heart disease. Rest, drugs, and X-ray treatment are almost invariably inadequate in the treatment of hyperthyroidism that can be readily recognized as such. Surgical operation with removal of a large part of the thyroid gland is certainly the treatment of choice and many permanent cures have been registered after this treatment. Iodine therapy is rarely to be recommended for treatment except in the preparation for operation. I would include the so-called toxic thyroid adenoma with exophthalmic goiter in the effect on the heart, and in the relief or prevention of heart disease that follows early recognition and treatment of the underlying thyroid condition. Even when heart failure has set in, the thyroid gland if overactive should be removed and such removal will do more to restore normal heart action than digitalis and any other therapy; it is also astonishing to observe how well such sick thyrocardiac patients go through this surgical operation.

The opposite condition, of hypothyroidism, is seen in myxoedema in adults and in cretinism in children. In such cases the heart action is deficient and there may be considerable dilatation of the heart in a few patients, even though there is little or no heart disease. The administration of thyroid extract to such cases improves the heart action and circulation and abolishes the dilatation. In older patients, however, this potent drug should be used with care because of the frequent association of coronary arteriosclerosis with myxoedema and the likelihood of inducing angina pectoris by increasing the metabolism.

(8) One of the commonest and often a serious cause of heart disease is High Blood Pressure (Hypertension or Hyperpiesia). This is rarely caused by kidney disease although years ago anyone with high blood pressure was at once said to have Bright's disease. Now we know that this is not so. What actually causes the hypertension is still a mystery, though every year at least one new theory is presented. Evidently there is for some reason an increase in peripheral resistance to the circulation; general thickening of the smaller arteries has been found, but whether or not the arteriolar wall thickening with narrowing of the lumen precedes the hypertension and what the cause of such thickening may be are problems for future solution. Such solution is urgent, for however much some physicians may be inclined to make light of high blood pressure in an individual patient, there is no doubt whatsoever that hypertension often exerts a great strain on the heart, frequently at a time of life when its coronary circulation itself is defective. A heavy toll of lives eventually results, and it is rare that a patient survives very high blood pressure for many years, even though we all may know of exceptions. We must face these facts and try to find answers to this difficult problem.

High blood pressure is generally classed as evidence of a degenerative disease and occurs in middle and old age, appearing first as a rule in women at about the time of the menopause. Although such hypertension may be transient, it often persists. Always the element of nervousness enters in, but anyone who has persistently a systolic blood pressure of more than 150 millimeters of mercury should be classed as hypertensive. Other facts that we know about high blood pressure besides its age incidence and serious cardiac (cerebral, or kidney) involvement are its greater tendency to occur in heavy nervous people who are accustomed to overeat and underexercise. Also there is a family tendency to the condition. These facts give us a lead in the way of prevention. The establishment of sensible habits of exercise, rest, and diet—particularly to avoid overeating and obesity—is the obvious recommendation to make to a young, middle-aged, or even old person who wants to do what can be done to avoid hypertension. Such advice should be given particularly to members of hypertensive families.

Even after hypertension has begun and has become established, the institution of good habits may still help in retarding the inevitable strain on the heart.

(9) An infrequent cause of heart disease is Chronic Extensive Disease of the Lungs. This type of heart disease has been called the "emphysema heart" or pulmonary heart disease. The obstruction to the pulmonary circulation resulting from the chronic lung disease may exert a great strain on the right ventricle just as the usual systemic high blood pressure

may exert a great strain on the left ventricle. Eventually in a few cases, usually in old age, heart failure may result from this strain. The prevention of this kind of heart disease evidently depends on the prevention of diseases of the lungs and pleura.

(10) Coronary Arteriosclerosis is the last important cause of heart disease to be considered. It is definitely a degenerative change, usually a sign of senility, but often found in relatively young people, especially in certain families. It is common and doubtless occurs to a greater or lesser extent in all old people. It is present in a degree sufficient to cause symptoms, however, in only certain individuals, numerous enough to be sure. The characteristic symptoms are *angina pectoris*—a strangling oppression under the upper sternum generally coming on exertion—and sometimes in other cases breathlessness and dropsy due to congestive heart failure. The occurrence of important coronary disease with the resulting restriction of blood supply to the all-important heart muscle is not a surprising finding in an aged person, say eighty years old, but it is a disquieting and abnormal condition when it makes its appearance as it frequently does in a man forty or fifty years old. Women are rarely affected by the condition so young, and doubtless it is the greater wear and tear and strain of the man's life in business and professional work that makes the difference. A woman at middle age may have a lot of work to do but it usually is not under great pressure, and she has a chance to chat now and then in a leisurely way about nothing in particular with her next door neighbor. If men could or would, and the latter expression is the more apt, follow the women's example they would have less angina pectoris, though I daresay the women might have more if they discovered as a result that they must worry and scurry a bit more to maintain their economic status.

It is not the coronary arteriosclerosis alone that causes the angina pectoris. A sensitive nervous system and nervous strain are almost always necessary too. Yet in spite of, or perhaps because of, the very important nervous element, angina pectoris can be quickly fatal with little to show for it in the way of obvious heart disease other than this very significant symptom. Even though there may be no evidence of heart disease the condition is real, and always important none the less, and the term false or pseudo or secondary angina pectoris is grossly misleading. We may have relatively mild angina pectoris or very severe angina pectoris, but it is all real enough.

With proper regulation of habits to avoid hurry, worry, overexertion and overeating—life in the case of angina pectoris can usually (not always) be prolonged for a considerable number of years, often five, ten or more. Undoubtedly the same measures adopted in middle age, especially in members of families with a tendency to early appearance of arteriosclerosis, will tend to prevent angina pectoris, or at least to retard it.

A very serious further stage in the course of coronary disease is actual blocking of one of the sclerosed vessels by a clot of blood—*coronary thrombosis.* This is often quickly fatal and a frequent cause of death in people who die of so-called "acute indigestion." Even here recovery is, however, possible with good restoration of heart strength and survival to carry on useful happy lives, sometimes for a good many years. The same measures of common sense living, especially in certain families, that have been already recommended to ward off angina pectoris, are applicable here. The fundamental cause of arteriosclerosis itself is still to be discovered; a few facts about certain evidences of coronary disease have been briefly pointed out. Finally, the increasing frequency of angina pectoris in the present age is one that demands some action. It can't be more accurate diagnosis, specialization, and a prolongation of the average duration of life that have made the difference btween a period of five years in Austin Flint's busy practice in New York City sixty years or more ago when he saw not a single case of angina pectoris and my own experience of seeing one hundred new cases in private practice less than eight monthly recently and four new cases in a single day two or three weeks ago. There must be a factor which is new and I believe that that is to be found in the mad pace of American life today. A halt must be called. I would like to quote a paragraph from a recent paper by Harrold Bachmann in the *Bulletin of the Chicago Heart Association.* The paper was presented to a group of women and was entitled "Those Hearts of Yours, A Message to Wives and Mothers."

XUM

"The pace set by the present age for the business man is one taxing mental, physical and moral standards every minute. Though he may sit comfortably in his chair in a luxurious office, that selfsame strain is there sapping his energy, stimulating a nervous system, and provoking a demand on his heart beyond the reserve so gradually narrowing each year. Fatigue, palpitation, chest discomforts, and breathlessness appear, but only to be ignored. The pace is still upon us, the market is fluctuating, a new building is under construction, a directors meeting or a thousand other contigencies keep crowding upon us. Still more symptoms arise and perhaps advice is sought and rest is urged. But what is rest for a busy mind? Miles away telegrams and cables still demand the attention of that creative genius; newspapers still bring those potent problems of the business world. The lure, the excitement of business combat is so instilled that distances no longer count. There may be complete satisfaction with what he already possesses, but the tact, the technique, the skill required to merely hold that, demands an ever-constant alertness and ingenuity that in itself is a consuming flame. The art of living has become in this age a problem of living. The satisfaction and peace of an earlier age has become the anxiety of the present. The tone, the pitch, the rhythm accompanied by the rapid tempo wears and tears and tugs at that reserve meant to be conserved for those declining years. That vital life-giving heart is the center of this maelstrom and soon succumbs to the devastating pace. With its decline there is reflected throughout the whole system discomfort, handicaps, and embarrassment.

"What is there to be done about it and what shall be your role in the conservation of this manpower whose energies and vitality is being sapped and depleted in this speed age of ours? Through you must come that guiding control which slackens the pace. From you must come that warning, that advice to curtail activity before nature's warning becomes too evident. From you must come that tactful influence to slow up, to rest and to conserve. All this is your obligation and duty and to perform it you must approach your subject with intelligence and understanding. Begin early when the first manoeuvres in the business world are made and before habits of excessive industry have been established. Annual vacation periods must be an important part of your demanded program. The great Mackenzie once said in effect that no man can do a year's work in twelve months as well as he can in ten. Periodic vacations are of paramount importance and must be urged, for through them we acquire that restoration of forces, that accumulation of resistance, and that increased capacity of function."

(11) Finally there come up for brief consideration a few *miscellaneous* conditions which have often been under discussion as causes of heart disease or of heart strain. Undoubtedly in extreme cases there can be from some of them a little heart strain or irritation but none of them primarily produce heart disease so far as we know now from careful studies. These miscellaneous conditions include athletic sports, military strain, accidents, physical work in industries and labor, obesity, overeating, excessive use of tobacco or alcohol, and pregnancy. There are in addition rare examples of poisoning of the heart as by arsenic, but of these there is no need of discussion.

I have finished my brief review of the causes of heart disease, and I hope that I have demonstrated two things: first, that the subject is an important, difficult, and complicated one demanding some interest and help from all of you, and second, that some progress has already been made in the prevention of heart disease and that the outlook for the future is bright if we all cooperate in this vital work.

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CARDIAC PAIN WITH SPECIAL REFERENCE TO ANGINA PECTORIS AND CORONARY THROMBOSIS.*

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Practitioners are frequently called upon to meet the exhibition of cardiac pain and to act for its amelioration with promptness; it is hoped more clearly understanding the causes and interpretations of it, than heretofore. Much study of cardiac pain, with a close investigation of histories of cases, physicial examinations, hospital records, electrocardiographic and post mortem check-ups have thrown a clearer light upon the grave significations of this very variable term "breast pang," sternalgia, sternodynia and what not. One should at once broaden the territorial location

*Read by invitation before the Southside Virginia Medical Association, in Petersburg.

of cardiac pain from the old time understanding of the breast pang or substernal pain, because later day observations have brought home to clinicians that cardiac pain puts on very variable performances, in some provoking extreme anguish centering about the breast or precordial region and radiating down the left arm; others, expressing (mild) boring pain definitely located beneath the sternum or even referred below the diaphragm.

All so-called cardiac pains possess a significance of importance and should be recognized by alert physicians no matter how irregular or mild may be its exhibition in patients. In fact, to generalize, pains of any sort, in persons over forty-five, centering about the left chest, whether or not associated with irregular heart action, or occurring in patients with known hypertension or accompanied by a sudden loss of hypertension, should be thought of as connected with some serious malady of the heart, and, hence possibly significant of an ominous meaning.

Heart pain, from any one of the several heart conditions, later to be mentioned, is directly or indirectly associated with and dependent upon the blood supply of the heart. Indeed, this interference of the blood supply occurs in an organ, not at rest, but performing ceaseless function of contraction.

The Coronary Arteries

Then let us for a moment refresh our memories on the coronary blood supply in the heart, using Gray's classical description. The right coronary artery about the size of a crow's quill arises from the aorta immediately above the free margin of the anterior semilunar valve. It passes forward between the pulmonary artery and the right auricular appendix, then runs forward obliquely to the right side in the groove between the right auricle and ventricle, and curving around the right border of the heart, runs along its posterior surface as far as the posterior interventricular groove, where it divides into two branches, one of which continues onward in the groove between left auricle and ventricle, and anastomoses with the coronary; the other descends along the posterior interventricular furrow, supplying branches to both ventricles and to the septum, and anastomosing at the apex of the heart with the descending branches of the left coronary. This vessel sends a large branch along the thin margin of the right ventricle to the apex, and numerous small branches to the right auricle and ventricle, and the commencement of the pulmonary artery.

The left coronary, larger than the former, arises immediately above the free edge of the left semilunar valve, a little higher than the right; it passes forward between the pulmonary artery and the left auricular appendix, and divides into two branches. Of these one passes transversely outward in the left auriculo-ventricular groove, and winds around the left border of the heart into its posterior surface where it anastomoses with the transverse branch of the right coronary; the other descends along the anterior interventricular groove to the apex of the heart, where it anastomoses with the descending branches of the right coronary. The left coronary supplies the left auricle, and its appendix, both ventricles and numerous small branches to the pulmonary artery and the commencement of the aorta.

Deeper divisions of both coronaries by subdivisions penetrate the entire heart wall in rich inter-anastomosing meshes which have a longitudinal arrangement, following the intricacies of the columnae carneae and spending themselves macroscopically under the endocardium (Gross).

Again, the blood supply of the neuro-muscular bundle should be noted in this connection. Variability marks the coronary blood supply of this important specialized cardiac structure. Haas, quoted by Gross,[1] held that, in the main, the right coronary artery plays the chief role, supplying two branches from the posterior coronary arch, supplying upper posterior half of the septum; further, supplying the posterior divisions of the neuro-muscular limb in left ventricle, and, second (a ramus septi fibrosi), supplying the inner muscular layers of both ventricles, a stout twig entering Tawara's node and losing itself in the main bundle and beginnings of both neuro-muscular limbs. The left main limb of neuro-muscular bundle is supplied nutrition by fine twigs from the left coronary, while the right limb lies just on the border between regions of arborization of the right and left coronary arteries in the septum.

While Haas was of the opinion that in the human heart no anastomoses exist between right and left coronary arteries in the auriculo-ventricular node and the main bundle, Gross,

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after a study of 100 human hearts, holds that a distinct and specific blood supply exists for both sino-auricular and auriculo-ventricular nodes, the main bundle going to the first portion of the left limb and a large portion of the right limb of the neuro-muscular bundle, while the remainder showed a blood supply which corresponded to the area of heart musculature upon which it rested, and in this field there was anastomosis between branches of the left and right coronary arteries.

Since blood supply to the heart plays a definite etiologic relation to cardiac pain, some further amplifications may be made here on the anastomoses of the coronary arteries. Gross came to the general conclusion that the heart is perhaps the richest organ in the body as regards capillary and pre-capillary anastomoses between branches of the same coronary artery as well as between branches of both coronaries; further, that anastomoses exist between the coronaries and vessels from adjacent and attached organs, as found between coronaries and branches of the bronchial arteries, arteriae mammariae internae and those arteries of the diaphragm. Gross remarked upon this situation, in part, by saying, if the obliteration of coronary blood supply is gradual and the circulation good, sufficient dilatation of anastomosing vessels can occur to preserve musculature.

Cardiac pain is also necessarily associated with the nervous connections of the human heart. Let us then mention briefly the nervous system's connection of heart pain as to the route pain impulse travels and the sites of body location. Recent surgical[2] treatment of angina pectoris, for instance, has relieved pain in a percentage of cases by division of nerves leading from the heart to the spinal nervous system, thus interrupting stimuli (supposedly) arising in the heart, which ultimately stimulated sensory nerves supplying chiefly the thorax, arms, and neck. Generally speaking, the total innervation of the heart is derived from the pneumogastric and sympathetics; in this is found the connection between the heart and the central nervous system. Both the vagus and sympathetic system convey sensory impulses from the heart and, together with recurrent nerve fibers, form the path way for pain impulses to the exterior.

This sensory expression of cardiac disturbances appears on the surface of the body in some portion of the distribution of the upper four left dorsal nerves in the chest and arm; sometimes as low as the sixth dorsal nerve in the epigastrium; and sometimes as high as the eighth and seventh cervical, as distributed in the ulnar border of the fore-arm and hand. This type of cardiac pain is rarely felt on the right side. The breast pain is most frequently across the left chest and remains stationary there, or it may radiate into the axilla and down the arm on the ulnar border, sometimes stopping in the upper and fore-arm, later to the wrist and hand. Sometimes cardiac pain of this syndrome may start in the arm and radiate to the chest. But, as before indicated, heart pain arises from various associated causes and may present variability in types, locations, and degrees.

To illustrate a type of pain, a patient, recently in the hospital, called her pain a boring pain behind her breast-bone; some speak of the cardiac pain as being a dull pain like a growling tooth-ache; some call it a sickening pain, with a sense of oppression and fear; some describe the cardiac pain as a "tired feeling of the heart." These various expressions of cardiac pain betoken rather different shades of cardiac pathology and function. Probably Musser's[4] recent paper, calling attention to White and Wood's classification of heart pain, puts the matter before us in succinct fashion. They classify cardiac pain first, into a simple fatigue pain which arises in (a) chronic hypertension, (b) in aortic stenosis and regurgitation, (c) in mitral stenosis and other valvular lesions, and (d) in disturbance of cardiac rhythm, such as paroxysmal tachycardia, or paroxysmal auricular fibrillation, or flutter, or permanent auricular fribrillation or flutter with high ventricular rate; second, into paroxysmal cardiac pain, severe or mild, due to angina pectoris; third, pain of coronary thrombosis or infarction.

Now, simple fatigue pain of the heart is by far the most common type of heart discomfort. Its very mildness deceives the patient, but should excite inquisitiveness on the part of the physician, because an investigation of precordial distress may lift the curtain and disclose the presence of a grave cardiac malady. It is not difficult to visualize, if we recall the blood supply and nervous innervation of the heart, the occurrence of a fatigue pain in a cardiac irregularity, as, for instance, parox-

ysmal tachycardia or auricular flutter, in which there may be 220 auricular beatings per minute, or auricular fibrillation of 450 beatings per minute. It is not difficult to interpret the feeling of a precordial distress of the patient with high blood pressure, or with chronic valvular disease with hypertrophy and dilatation of the myocardium. These patients suffer discomforting and disquieting precordial pain, which is spoken of as characterized by fatigue pain.

But it is the main purpose of this note on heart pains to draw special attention to cardiac pains as found in the syndromes of (1) angina pectoris, and (2) coronary thrombosis. Pain in angina pectoris has received a rather critical inquiry recently at the hands of Keeper and Resnik (*Archives of Internal Medicine*, Vol. 41, No. 6, page 770), and various theories as to actual cause of this paroxysmal type of cardiac pain have been discussed. Objection has been offered to the acceptance of coronary disease as a cause in all cases of angina pectoris, although it has been conceded to be present in a definite percentage of cases. While coronary spasm has been controverted by these authors as a cause of angina pectoris, they have offered it as their theory that anoxemia of the myocardium more completely explains the occurrence of pain in angina pectoris of Heberden. It becomes necessary to recognize that angina pectoris cases of the past have been somewhat confused with coronary infarction cases. But it is easily conceivable that angina pectoris may arise without demonstrable evidence of actual disease in the coronaries after death. It is quite possible that an anoxemia or an ischemia of the myocardium may occur in an effort (contracting) of the fatigued heart, without actual permanent disease of the openings or in the channel or walls of coronaries. The outstanding diagnostic feature of angina is the paroxysmal character of the pain occasioned by effort, or relieved temporarily by rest and nitrites, because rest and nitrites improve coronary circulation to the ischemic or anoxemic heart muscle, thus relieving cardiac pain. Although intense pain is experienced in some cases, ventricular systole proceeds with regular rhythm and, although the patient expresses the sense of fear, the heart rate continues regular. The angina pectoris of Heberden may, however, be characterized by sudden death. Immediate death may occur in partial coronary occlusion when a sufficient area of auricular and ventricular circulation is involved to produce either sudden suspension of function of the neuromuscular bundle or auriculo-ventricular action. This may occur in a previously diseased heart, either in the blood vessels or myocardium. Angina pectoris, we must recall, is a syndrome of the fifth decade and beyond.

But cardiac pain must include a consideration of coronary disease and thrombosis. We must reiterate our belief that cases of angina pectoris have been, and probably are being, confused with coronary thrombosis. Likewise, it is true, as recently experienced in my practice, one may have angina pectoris at the beginning, and coronary thrombosis at the end of an acute cardiac syndrome. One may have angina pectoris that responds to nitrites for a time; then, suddenly or gradually, cardiac pain fails to disappear under nitrites, and the heart becomes irregular, blood-pressure falls, shock and collapse appear, with presence of leucocytosis, pericardial friction rub, rales in the base of the lungs, and pain over the epigastrium and right hypochondrium.

Thus cardiac pain may announce coronary thrombosis. One has only to recall the origin and distribution of the coronaries furnishing blood supply to a constantly working organ in order to conceive of the varieties of cardiac pain one may see. Coronary thrombosis is a distinct cardiac entity and must be differentiated from angina pectoris. If for no other reason, the therapeutic management demands this distinction. Anderson[5] has recently arranged the signs in concise order:

Attacks of pain in coronary thrombosis may be sudden or gradual, or may be a part of an anginal paroxysm.

1. Anxious expression.
2. Ashen color of skin.
3. Posture not characteristic, but patient often sits up and leans forward, sometimes holding the chest transfixed.
4. Pulse is weak; may be alternating, regular, or irregular, slow or fast, unlike angina pectoris.
5. Blood pressure shows sudden drop in both systolic and diastolic pressures from normal or from previous higher levels.
6. Fever appears, about 99 to 101, at end of first day.

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7. Respiration may be normal, but may be shallow, rapid or forced. Auscultation often elicits rales at the bases, sometimes suggesting pneumonia.

8. Heart impulse is feeble, and percussion may elicit increased diameter of the heart.

9. Heart sounds are usually feeble; systolic murmur may be heard at the base and apex; irregular rate is noted often in previously regular heart. Pericardial friction is often present. This distinctive sign is not always present and not always easily heard. Roughening of visceral pericardium depends, of course, on the location and amount of infarction in the myocardium.

10. Liver signs confuse the diagnosis often. Pain over the liver may so quickly appear in clinical evolution of coronary infarction that patient and physician may be misled into suspecting too strongly gall-stone colic, acute cholecystitis, acute pancreatitis, even appendicitis, or perforating duodenal ulcer. Acute abdominal pain has frequently beclouded an interpretation of coronary thrombosis. Marked and sudden distention of the liver, characterized by pain, resulting from distention and irritation of Glisson's capsule, is to be kept in mind in these cases.

11. Signs of gradual heart failure may follow. The order of appearance of signs in the liver and lungs may be an index of right or left coronary thrombosis,—in the right, liver signs; in left, lung signs. But one must remember distinctions and anastomoses of the coronaries in reaching this differentiation.

12. Embolic phenomena may appear breaking out of the thrombolic field of the endocardium.

13. Laboratory signs in thrombosis, varying with inflammatory involvement, show leucocytosis of 10,000 to 20,000.

14. Electrocardiographic signs are significant and diagnostic. A vast amount of recent study has been reported in this field, but I shall make only a brief and dogmatic reference to this diagnostic sign.

F. M. Smith studied the heart electrocardiographically after ligation of the left coronary, and many others have reported electrocardiographic signs in coronary thrombosis, left and right. Location and extent of infarction effects electrocardiographic signs as does the state of integrity of the heart in general. Disturbance of rhythm and of conductions may be noted. The more frequent abnormalities of electrocardiograms are connected with the ventricular complexes; but it is in the T-wave, at the final activation of ventricular musculature toward the arterial orifices, that one gets the most characteristic sign. Without going into the subject in too much detail, let me say that tracings that show complete or partial bundle branch disturbance in previously normal electrocardiographic tracings, slight change in the Q. R. S. complexes, with inversion of T-wave in two or more leads, are significant of coronary thrombosis. T-wave is affected by digitalis, so, where digitalis has been given, the interpretation is not dependable. T-wave in two leads inversion is a grave prognostic symptom. Patients with T-wave inversion in two leads demand careful medication and strict control from effort and excitement or indigestion. The older the heart, the richer the anastomoses, but the greater the loss of reserve strength in the unaffected myocardium. But with the collateral of coronary arteries and anastomoses, if proper care is practiced during the post-infarction period until compensatory circulatory adjustment can be made, these patients having escaped sudden death during the initial stage of infarction, may live useful, but abridged lives for years.

Case Report

Coronary thrombosis following a series of anginal paroxysms is well illustrated in a patient whom I saw last April. This patient, a white male, retired from business, aged about sixty years, was seized suddenly on April 23rd, while in New York attending theater; was taken to Dr. Coley, who gave emergency treatment and advised the patient to go at once to a hospital there. This the patient, somewhat relieved for the time being, refused to do, and took the train for his home in Richmond. He suffered an attack of severe chest pain shortly after reaching his residence, but gave history of a rather comfortable journey down during the night.

When first seen by me in response to a hurried call, the patient was seated in a chair with attitude of one in extreme pain, but with good color and regular pulse. He said he was suffering severely over his heart. Amyl nitrite pearls gave him quick relief. Patient was put to bed. Nurse summoned and nitroglycerin and nitrite sodium were prescribed for attacks. His blood pressure was 160 sys-

tolic and 80 diastolic; heart sounds good; systolic murmur at apex; pulse rate was 80.

For seven days this patient had from three to five paroxyms of pain over the chest and running down his left arm. Each attack was well and promptly relieved in from five to fifteen minutes by resort to one or another or a combination of nitrites. No morphine was given. Pulse remained good in quality, excepting loss of resistance shortly after nitrites; blood pressure reading varied very little if any; color and morale of the patient were good.

On the seventh day, April 29th, nurse's notes stated that patient ate breakfast and had an attack of pain during breakfast, with pulse of 88 and regular. Administration of amyl nitrite relieved patient, but a dull pain continued over the heart; another amyl nitrite caused slight relief. At 12 o'clock, another severe pain seized the heart, and amyl nitrite, nitroglycerin, euphyllin tablets, closely administered, gave no relief. At 12:40, pain was growing worse; patient showed pulse weakness and a drop of the rate to 60 beats a minute, with extremities cold and clammy. I was called and arrived at his bedside at 1 o'clock. I found the patient pulseless at radial artery; pain was not so severe; heart was slow in action and so weak that the sounds were almost indiscernible; patient was in a cold sweat over face, neck, chest, and body; very pale; pupils dilated; shallow and rapid breathing.

Adrenalin chloride and caffein sodio-benzoate with morphine sulphate, 1/6 grain, was quickly given hypodermically. Heat was applied and blood pressure was read, but no record of it could be gotten. In twenty minutes caffein and adrenalin chloride were repeated. At 1:30 pulse was felt at the wrist; heart sounds had previously become more audible and pulse rate at 2:30 was 72 per minute, though of very poor quality. But there was no pain,—all pain was relieved. At 4:20, pulse grew very weak; as I attended the patient continuously, morphine, ¼ grain, and atropine, 1/100 grain, were given hypodermically. Pulse rate fell to 64 per minute; absence of pain continued. Coramine was given hypodermically 4:30 P. M. Pulse at 9 P. M. was 98, and temperature 99.4; rales were elicited in posterior bases of lungs. At 12, midnight, pulse was 72 per minute, but was irregular for the first time; and temperature was 100 F.; respiration 18 and patient complained of pain when breathing.

At 8 o'clock, April 30th, patient's pulse was 76, but arrhythmia was marked. Temperature was 100.4; respiration 22; but there was no pain. From this time the patient suffered no chest pain; pulse rate fell to 58 per minute and was characteristically irregular and weak, blood pressure readings being around 90 m.m. Hg. systolic.

Hiccoughing annoyed the patient for several days; rales cleared in the bases of the lungs; blood pressure 108/80; pulse 60, with occasional irregularity, but no cardiac pain occurred.

On May 12th, temperature was normal, pulse 78, respiration 16; no pain on breathing; blood pressure 90/60.

The patient was kept in bed for four months, with fair improvement, but heart occasionally displayed marked irregularity, with low blood pressure, and slow rate.

A series of three electrocardiograms were made on this patient. and T-inversion was noted in each in two leads.

This patient, now seven months since first taken, is enjoying fair health, but is allowed no exercise. He has had no cardiac pain. Diagnosis was made of thrombosis of a large branch of the left coronary artery following a seizure of angina pectoris. This was based upon clinical signs and symptoms,—sudden cessation of pain, with collapse and fall of blood pressure, slowing of heart rate, with irregularity, temperature 100 F., rales in base of lungs, no pain over liver, and electrocardiographic T-wave inversion in two leads.

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2. Cutler: Summary of Experiences Up-to-Date in the Surgical Treatment of Angina Pectoris. *J. A. M. A.*, May, 1927, page 613.
3. See Mackenzie, Disease of the Heart, page 45.
4. Musser: Cardiac Pain. *J. A. M. A.*, October 27, 1928.
5. Anderson, Annals of Internal Medicine, September, 1928.

1135 *West Franklin Street.*

If you don't believe in yourself, you've lost before you've fought. Master your fears—just give yourself the show that you'd ask from anyone else and you've won the greatest part of your battle.—*Selected.*

UNDULANT FEVER.*

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Undulant fever may be defined, at least for the present, as a specific infectious disease caused by a member of the bacterial genus *Brucella*.

It includes the disease formerly known as Malta fever, which has about fifty synonyms recorded in the literature. The name undulant fever was proposed by Hughes[1] in 1896 as descriptive of the long wavy appearance of the fever chart of the patient. Recently the terms "brucelliasis" and "brucellosis," meaning the state of being infected with *Brucella*, have appeared. In some respects these terms are preferable, for the fever in man is not always undulant in type, nor do infected pregnant animals always abort.

While the writings of Hippocrates contain paragraphs that suggest a description of undulant fever, the accurate description of the disease dates from the work of Marston in 1859. In 1886 Bruce,[2] of the British Army, discovered the causative organism of Malta fever, and in 1887 isolated it in pure culture from a fatal case of the disease. He named this organism *micrococcus melitensis*. The disease as it occurred in Malta was one of the worst scourges of the military and naval forces, its prolonged course rendering men unfit for duty for months. Osler gives the average duration of nearly 3,000 cases as 120 days.

In 1904 a Commission[3] was appointed to study the disease in Malta and, after one to two years of research, discovered that the Maltese goats were infected with the disease, and that the organism was eliminated in the goat's milk. Confirmation of this discovery was furnished late in 1900 by an outbreak of the fever on the *S. S. Joshua Nicholson*, which carried a shipment of milch goats from Malta to Antwerp. The milk of these goats was used by members of the crew, and of those whose history could subsequently be traced, all who consumed this milk contracted the disease, except two engineers. It then developed that these engineers always boiled their milk before using it.

The boiling of milk used by the military forces in Malta, following the discovery that the organism was present in goat's milk, resulted in a rapid subsidence of the disease in the military population.

In 1897 Bang,[4] of Denmark, isolated an organism from cows that had aborted to which he gave the name *Bacillus abortus*. This organism was found to be the cause of much of the contagious abortion in cattle and other animals. In 1914, Traum[5] isolated an organism thought to be *Bacillus abortus* from swine, though it has since been found to differ from *B. abortus* in some particulars. In 1916, Good and Smith[6] described this swine organism.

The later knowledge of undulant fever dates from 1918, when Alice Evans,[7] of the Bureau of Animal Industry, United States Department of Agriculture (now with the United States Public Health Service) published her work showing that *Bacillus abortus* and *Micrococcus melitensis* were so closely related that they were indistinguishable except by very highly specialized laboratory tests. This report was soon confirmed by others, and the question of whether *Bacillus abortus* could cause disease in man was immediately recognized.

In 1924, Keefer[8] reported a case of fever resembling Malta fever, due to the abortus organism. Prior to this Craig[9] reported a case of Malta fever in the United States in 1905, and about 1911 Ferenbaugh and Gentry[10] reported the occurrence of a number of cases of Malta fever in the goat raising section in southwestern Texas.

In the meantime the names of the organisms had undergone a change, the generic name, *Brucella* (in honor of Bruce), being given to the group. The original *Micrococcus melitensis* became *Brucella melitensis*, and the *Bacillus abortus* is now usually spoken of as *Brucella abortus*. It is customary to speak of the bovine and porcine strains of *Br. abortus* in referring to the organism originally isolated from cattle and swine by Bang and Traum, respectively. Huddleson[11] suggests the name *Brucella suis* for the swine organism.

Prevalence.—Though the disease has been reported in various sections of the world, we are chiefly interested in its prevalence in the United States. I am indebted to Acting Assistant Surgeon A. V. Hardy[12] for the following figures:

Prior to 1925 there were 128 cases reported, and 121 of these were in Texas, New Mexico, and Arizona.

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In 1925—five states reported twenty-four cases (Texas had sixteen of these).

In 1926—eight states reported forty-six cases.

In 1927—twenty-one states reported 217 cases.

In 1928—forty-one states reported 649 cases.

In 1929—(to May 31) thirty-two states reported 359 cases.

The total of these figures is 1,423, and over 1,000 of these have been reported since January 1, 1928. On November 30, 1929, the disease had been reported, or was known to be present, in every state of the Union.

Clinical Aspects.—I am sure that practically every physician present has, at some time in his professional life, seen cases of fever that he has not been able to diagnose to his own complete satisfaction. Some of the older ones will recall the days when *febricula* and *ephemeral fever* were used to meet the demand of a diagnosis in such cases. I fear there is a tendency nowadays to ascribe most of these cases to "influenza."

The clinical symptoms of undulant fever are many, but three are quite commonly present, viz., fever, chills (or chilliness), and sweats. To these I would add that in a majority of cases the patient exhibits a peculiar lack of discomfort which is remarkable when the degree of fever present is considered. This general appearance of the patient contrasts markedly with the dull and depressed condition of typhoid fever.

The onset of the disease is usually insidious; in fact, the patient frequently has difficulty in recalling just when he began to feel sick. He usually states that for some time he has noticed that he did not feel exactly normal, tires easily and feels weak generally. It is not infrequent for him to feel well in the morning and start on his usual daily duties, only to tire out and cease work in the early afternoon. Occasionally he feels feverish and, if the thermometer is used, a surprising degree of fever will be found. Frequently the patient complains of chiliness, in some cases severe rigors, followed by fever and profuse sweats. This syndrome is suggestive of malaria, but I have interviewed a few cases that had previously had malaria and they stated that their chill and fever were not like malarial attacks. The chills may occur more than once during the day, or may be several days apart without any regular periodicity as is usually seen in malaria.

The name undulant fever is taken from the fever curve, but this does not always run a true undulating course. Roughly speaking, a typical undulant curve resembles a typhoid fever chart with from one to three relapses. Hughes describes a remittent form of temperature curve which does not show the long waves but a considerable daily variation over a period of several weeks. He also describes a malignant type, fortunately rather rare, in which the fever is high and practically continuous for two to three weeks, usually ending fatally. He also describes an ambulant type with an irregular low grade fever.

If the temperature is taken several times during the day quite unusual variations are sometimes seen. It may reach a high degree before noon, then drop in the middle of the day, and rise again in the late afternoon. Like most fevers, it is customary to have the lowest temperature in the morning and a rise in the evening.

The sweating of undulant fever is quite characteristic, though a few cases report no sweating. The majority describe a profuse "drenching" perspiration, which accompanies a fall in temperature, and it usually takes place during sleep. The cases I have interviewed have been asked if the sweat was confined to any part of the body and a majority have stated it was on the upper half of the body, particularly around the head, neck, and shoulders. A peculiar strong odor of the sweat has been noticed by some patients.

Subjectively, the patient may complain of general aching all over the body or more or less localized pain. Headache is usual at the beginning of the febrile stage. Backache and muscular pains, especially in the back of the neck, are frequently reported. Some cases complain of pain that suggests a neuritis, and abdominal pain is not infrequent. Pains in the joints are rather frequent and are suggestive of rheumatic fever. Objectively, the joints may show some swelling but it soon subsides, though the pain may continue. It is the joint symptoms that frequently make the patient an invalid for long periods.

Respiratory symptoms are usually meager. There may be a slight unproductive cough at the beginning of the disease and in some cases

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sore throat is a complaint. Epistaxis may be present in a few cases.

Cardiac symptoms are not frequent, though a few cases seem to have a bacterial endocarditis, and these cases may prove fatal. In such cases the pulse is rapid, but in the average case the pulse rate is low when considered with the accompanying fever.

Anorexia at the beginning and constipation throughout the disease are usually reported.

Of the nervous symptoms, insomnia is usually the most troublesome. Increased irritability is frequent and an abnormal degree of apprehension is occasionally seen. One case I have seen had a history of temporary insanity, and in several the fever has subsided and left the patient in what seems to be an extreme neurasthenic condition. Genito-urinary complications are not very frequent, though orchitis or epididymitis occur in a few cases. Prostatic symptoms have been observed. In females the infection has been found in an ovarian lesion and menstrual disturbances have been reported by some, while others report no apparent effect on this function. Those reporting disturbances have practically all suffered from delayed menstruation, and one reported complete suppression. A few women have aborted or had premature labors. Whether the *Brucella* infection was the causative factor is not determined, but knowing that the organism is a proven cause of abortion in domestic animals should warn us to be on watch for such a result in pregnant women. If an abortion takes place in a woman known to have, or suspected of having, undulant fever, a bacteriological examination of the expelled uterine contents should be made.

Physical examination is frequently entirely negative. An enlarged spleen is reported in about a third of the cases. Urine examination is usually negative, though a slight albuminuria may be found.

Blood examination usually shows a slight anemia, a slight leucopenia, and the differential count shows an increase of the lymphocytes with a corresponding decrease of the polymorphonuclear cells.

Loss of weight is almost always noted, the loss varying from five to forty pounds.

Diagnosis.—"The key which opens the door of diagnosis is suspicion." If I succeed in leaving with you anything that may lead you to suspect that a puzzling case may be undulant fever, the object of this paper will have been attained. How many of us have failed to make a correct diagnosis because the actual condition never occurred to us?

If you are consulted by a patient complaining of what appears to be a slight fever; if, perhaps, you are impressed with the fact that he does not seem very sick, and perhaps think he is making the most of his symptoms; if he complains of tiring easily upon slight exertion; and if, on using your clinical thermometer, you are surprised to find him with a fever of 101° to 104°, your suspicion should turn toward undulant fever and laboratory aid should be sought.

The diagnosis depends finaliy upon laboratory tests. The most convincing evidence is the obtaining of a culture of *Brucella* from the blood stream. This is not always possible, as it usually requires that the bacteriologist visit the case and take the specimen himself. The *Brucella* are slow growing organisms and any contamination will soon outgrow the *Brucella*. If blood cultures are made they should be incubated twenty to thirty days before being thrown out.

The test that is usually applicable is the agglutination test. The more recent publications on the significance of *Brucella* agglutinins in human blood seem to show that the presence of these agglutinins is evidence of an infection, either past or present, with living *Brucella* organisms. It seems probable that some individuals may develop these agglutinins from the ingestion of *Brucella* in doses too small to produce symptoms of the disease. Such persons may give a positive agglutination test in low dilution without having exhibited any symptoms of undulant fever. At the Hygienic Laboratory at Washington we have considered a positive agglutination in 1:80 dilution, or higher, as significant of undulant fever, if clinical symptoms are present.

The blood specimen that is submitted to the laboratory should be taken as is blood for the Wassermann test. Dried blood specimens are unsatisfactory. Five to 10 c.c. of blood in a sterile glass container will be sufficient to do all the serum tests that you desire.

Prognosis is good as regards life, but uncertain as to duration of the disability arising from the disease. The mortality rate is usually given as 2 to 3 per cent, though I have

found higher figures in some localities. This may be due to incomplete reporting of cases due to non-recognition, or to failure to report recognized cases.

Treatment.—As practicing physicians, you are all interested in the curing of your patients' ills, and naturally want to know how to cure undulant fever. I regret that this particular aspect of this paper will be disappointing, for we have no specific treatment for the disease. Mercurochrome, mercurophen, and acriflavin have been used in attempts at specific chemotherapy. Vaccine therapy has been used with good results by some, with disappointing results by others. Some have used foreign protein injections, usually sterilized milk, and have reported beneficial results. However, relapses and recurrences are numerous in cases treated by each of these methods.

We advise keeping the patient in bed during the febrile stage, the use of a liberal diet, and the treatment of symptoms and complications as they arise.

The question of immunity conferred by an attack is a point for discussion. The great difficulty has been to determine when a patient has completely recovered. In other words, is his second febrile attack a second infection or a relapse or recurrence of the first? From work on experimental animals it seems probable that one attack confers immunity.

Epidemiology.—I now come to a consideration of that phase of the disease with which the organization that I represent is most interested—the public health aspects of undulant fever.

If we consider mortality rates alone, we might properly turn our attention to other diseases that actually end the life of more people. However, if we consider the economic loss entailed by a total disability of three to twelve months, and the added community expense of maintenance of a dependent family, if the patient happens to be the supporting wage earner, we will soon be talking in figures far too large for the average doctor to comprehend. In addition to this loss, there must be added a still greater one due to its effects on the livestock of the country. It is therefore incumbent on every physician to do all he can to prevent the disease in man and to support any reasonable plan to eradicate the infection from our domestic animals.

The disease is apparently conveyed to man by two methods: ingestion of raw infected milk and dairy products, and by contact with infected animals, either living or dead. A few cases also result from laboratory infection of those working with the disease in laboratories.

As to the exact portal of entry into the body, we know that the feeding of infected materials to experimental animals has given excellent results. The number of cases of the disease in man that report the use of raw milk infected with *Brucella* furnishes rather convincing evidence that the alimentary tract is one, if not the chief, portal of entry of the organism. However, some cases give no history of consuming milk, but do give evidence of having been associated rather closely with infected animals either by working around the living animals or by handling their carcasses and by-products after slaughter. Whether in these cases the infection gains access to the body through the mouth (by accidental transfer from soiled hands), through cuts or abrasions, or through the unbroken skin is a question that is under discussion.

Hardy[12] has reported the infection of a fair percentage of guinea pigs by placing cultures of *Brucella* on the unbroken skin with no preparatory treatment other than clipping of the hair.

From the viewpoint of the epidemiologist the cases are divided into three groups: (1) Milk-borne; (2) Those due to contact with infected animals, and (3) Those exposed to infection through both these channels.

The number of cases in the last group is large, as a majority of cases among farmers and their families fall into this group because they work around infected animals on their farms and also use milk obtained from these animals. Occasionally it will be possible to assign them to one of the first two groups.

Those cases definitely traceable to probable infection through contact with infected animals will usually be found following an occupation that brings them in direct contact with infected animals, or animal products, and such occupations may be classed as hazardous. Such occupations are butchers, veterinarians, packing-house employees, and farmers who work around livestock. Occupations that are less hazardous but give occasional opportunity for infection are truckmen and freight and express warehouse men.

The majority of cases definitely attributed

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to milk-borne infection are found in cities or villages, and nearly all are found to be users of raw milk. It is also worthy of note that cities that have a high percentage of their milk pasteurized report few cases, except those that come to the city from the surrounding country, either casually, or seeking treatment for their illness. In California, San Francisco with 97 per cent of its milk pasteurized (1923 figures) is practically free of the disease. Los Angeles City with about 80 per cent of its milk pasteurized, furnished about one-third, and Los Angeles County, which includes the city, about one-half of the total reported cases of the state during the two and one-half years from January 1, 1927, to July 1, 1929.

New York State has had over 150 cases, but New York City has been practically free. New York City reported one case[13] in a man who worked as a painter in a milk pasteurizing plant, who admitted drinking milk in the plant before it was pasteurized.

Carpenter and Boak[14] have reported that when milk is allowed to stand the greatest number of abortus organisms will be found in the cream. They found that the *Brucella abortus* remained viable in cream for eight to ten days at refrigerator temperature, and lived in butter made from unpasteurized sweet cream for 142 days. They also found that the organism could not be found after the cream or milk had soured. Fortunately, most of the butter made from sweet cream is made in creameries that pasteurize their cream for commercial reasons, and a large part of the dairy butter or so-called country butter is made from sour cream. This materially reduces the danger of infection through butter. The probability of infection through cheese is also rather small, for the acid-forming organisms produce conditions unfavorable for the existence of *Brucella abortus*.

The fact that young children are relatively rarely attacked by the disease sems to argue against milk-borne infection. However, veterinarians agree that calves before reaching sexual maturity are relatively immune to the infection, and the same seems to hold good for children below the age of puberty. A few cases have occurred in young children, but probably some special condition, such as massive doses of the infecting organism, is necessary to break the seeming immunity of young children.

Another fact that stands out prominently is the excess of males who contract the disease. On the whole, the proportion of males to females is at least two to one. In rural districts this excess of males is greater, while in cities the sex incidence is more nearly equal. The most reasonable explanation of this seems to be that males are more exposed to contact infection by reason of their occupation. It is also possible that they are more exposed to milk infection. Many men travel or at least take meals away from home, while women are more likely to eat at home, where their exposure to milk-borne disease is usually confined to a single supply, while the men are exposed to infection through milk from a number of sources.

Although there is good evidence that some of the undulant fever is due to consumption of infected raw milk, there is also evidence that much milk from cows infected with contagious abortion has been consumed in the raw state by persons who have not developed undulant fever. Indeed, probably the vast majority of persons who use raw milk do not develop undulant fever. There are several explanations offered, all of which require more proof. It is admitted by most pathologists that the bovine strain of *Brucella abortus* is less pathogenic for laboratory animals than is the porcine strain, or the *Brucella melitensis*. Some claim that the pathogenicity of bovine *Brucella abortus* for man is not proven, and others believe it pathogenic under certain conditions. It must be admitted that *Brucella abortus* does not cause disease in all who ingest the organism in milk. The fact that usually only one member of a family is attacked is cited in support of this contention. On the other hand, a few cases have been reported in which bovine *Brucella abortus* has been isolated from the patient's blood.

I am inclined to favor the theory that the determining factor in the incidence of undulant fever from infected milk is due to a question of dosage of the infecting organism, which is also affected by the virulence of the particular strain of organism present. We do not know the minimum dose of *Brucella* required to produce the disease, but have reason to believe it is a variable quantity because of the difference in pathogenicity of strains.

We do know that all members of the *Brucella* genus grow slowly in laboratory media, including milk. They take at least a week to produce as much visible growth as does the typhoid bacillus in eighteen hours. It seems probable that *Brucella* organisms do not multiply to any great extent, if at all, in milk after it is drawn from the cow's udder.

Not all cows that have been infected with contagious abortion eliminate the organism in their milk. If the abortus infected milk of a few cows is mixed with that of a large number of cows whose milk is free of the organism, the resulting dilution probably soon reduces the number of *Brucella* in a given amount of milk to less than an infecting dose. Occasionally the infection might become concentrated in a small portion of the mixed milk—say in a single can—and possibly reach the consumer in sufficient dosage to cause the disease. It is also possible that the resistance of the individual may have to be at a low stage before the the infection can secure a foothold.

If this argument is correct, we probably will seldom, if ever, see a widespread, overwhelming, explosive epidemic of undulant fever unless conditions as to pathogenicity of organism and extent of infection in livestock become radically worse than at present. On the other hand, a certain number will be incapacitated by undulant fever of milk-borne origin, and these cases are preventable by pasteurization of the milk.

The ideal method of preventing undulant fever is the eradication of the infection from our domestic animals, particularly cattle and swine. This is being attempted in some states, and fair progress is reported. Authorities of some other states think it is not practicable. It will be a long time before eradication can be accomplished, and in the meantime the health of the people should be protected.

Pasteurization will effectively prevent milk-borne infection. Contact infection will probably cause some cases as long as we have the infection in livestock, but these can be reduced in number by educating those concerned as to the nature of the infection, the hazard under which they work, and such prophylactic measures as each case may demand.

Our activities should for the present be directed along these lines: (1) Accurate diagnosis of the disease and reporting of same to health authorities; (2) The spread of information concerning the disease, especially to those whose occupation subjects them to probable contact infections; (3) The more extensive use of pasteurized milk; (4) Wholehearted support and cooperation with agricultural or veterinary officials in their attempts to eradicate the infection from livestock.

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THE APPROACH TO UROLOGIC SURGERY.*

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Upon previous occasions I have undertaken to emphasize a group of what have always appeared to me to be fundamental considerations in connection with the management of urological problems, namely, comprehensive pre-operative study in all cases, careful and thorough pre-operative treatment in many cases, and a painstaking effort in not a few cases to avoid surgery entirely and thereby conserve tissues which may at some future date represent the patient's main hope of existence.

It has been stimulating to find in the literature from time to time reports in a similar vein from observers in certain of the outstanding urological clinics of the country. My own return to the subject is induced by the persistent recurrence of cases illustrative of these considerations as well as by my conviction that decidedly too little attention has been given to

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them, with the result that major urological surgery is not infrequently undertaken upon insufficient data and with little or no regard for the value of preliminary preparation; and that some of this surgery would be found unnecessary or inadvisable if the possibilities of less radical measures were properly estimated.

Preliminary Study

In but rare instances will the surgery of the upper urinary tract appear to be of an emergency character. Usually the situation permits, and demands, an orderly and unhurried investigation. In this way only can essential conditions be determined and logical procedures mapped out. The assertion occasionally seen that the cystoscope has rendered urologic diagnosis precise in all its details is perhaps a bit over-enthusiastic. Various problems, especially in relation to the interpretation of certain pyelographic and urographic data, and in connection with conditions apparently linked with some little understood anatomical and physiological associations of the tract, still perplex the thoughtful urologist and invite his study. In the main, however, it may be accurately stated that modern instrumental procedures have cleared the field of most of its uncertainties, so that the surgeon may now approach the table with little or nothing left to the questionable evidence gathered in the course of the operation itself. The difficulty of determining by such evidence the existence of renal tuberculosis or a papilloma in the pelvis, for instance, or of localizing calculi, or of estimating the amount of functioning structure left, is so manifest that an exploratory operation on a kidney for such purposes is now permissible under only the most unusual circumstances. This data, along with a comprehensive exposition of the condition of the opposite urinary tract, should all be fully assembled before operation is undertaken, so that the actual surgery may proceed with relatively little regard to local findings at the time, and with almost no uncertainty as to whether the kidney should come out or stay in, or whether a calculus should be removed by pyelotomy or nephrotomy, or whether a sound kidney is present on the other side. It is not meant to imply that in the course of the operation the surgeon does not here, as elsewhere, exercise constantly that judgment which is one of his chief assets; but, however great his judgment, he cannot hope by palpation or inspection of a kidney to demonstrate sufficiently for his guidance essential lesions upon the interior of the organ; and this is sometimes true even after wide section of the kidney, to say nothing of the unjustifiable operative traumatism under such circumstances. In other words, speaking broadly, the surgery of the upper urinary tract should represent the accomplishment of a final step already defined by preliminary study, and not an exploration for the disclosure of the character as well as the execution of that step. Especially is it necessary to recall the extreme importance of demonstrating satisfactory function on the supposedly sound side; and if, in the course of a planned nephrectomy, this essential data is lacking, it is vastly better to close the wound and do a secondary operation than to risk the chance of removing a solitary kidney or one that is the patient's chief sustenance so far as renal function is concerned.

Preliminary Treatment

Ordinarily, after this preliminary study has pointed the way toward the necessary therapeutics, surgery, if indicated, can be approached without any particular delay, and the case disposed of without more ado. In many instances, however, the investigation, if comprehensive, will reveal not only the surgical lesion under suspicion but also some associated, perhaps complicating, pathology on the same side, on the opposite side, or on both sides. Too often this secondary aspect of the clinical picture is either ignored or entirely overlooked, and yet attention to it will almost invariably be rewarded by a definite increase in the factor of safety in the oncoming operation, by happier convalescence, by reduction in the likelihood of recurrences, and sometimes by the substitution of procedures of lesser magnitude for those which at first seemed imperative.

It will hardly be disputed that scrupulous care in preliminary treatment has revolutionized prostatic surgery and has assumed a position of commanding importance, even beyond that of the operation itself. If so much has been gained here, it seems reasonable to insist upon an application of the same principle to the upper urinary tract when circumstances appear to make this desirable. For instance, ureteral (catheter) drainage of an infected hydronephrosis or of an active pyonephrosis as

a preliminary to surgery, combined with general medical measures, forced fluids, and regulated dietary will rid the system of sepsis, reduce toxemia, relieve the load upon the kidney to be left behind, and get the patient in the best possible condition to withstand the shock of operation. Again, a little time spent in clearing the opposite kidney of a coincident infection may spare the patient an acute postoperative exacerbation in an organ which desperately needs all its reserves, unhampered, when it begins to assume the entire burden of renal excretion. Failure to dilate a stricture in the ureter may mean the persistence of stasis and the early recurrence of the calculus for which the operation is to be performed. With an acute hydronephrosis and infection secondary to the impaction of a calculus, it may be possible to push the stone back into the pelvis or circumvent it with a catheter, release the tension in the kidney, and subdue the infection; if so, the subsequent operative removal of the calculus may be freed of much of the danger that would otherwise have attended it. Finally, it is not uncommon to find an essentially sound kidney disturbed to the point of serious functional loss by reflex, toxic, or other influences emanating from the opposite side or from some other area of the body; here, to the destroyed function of one side, is added the crippled function of the other, and in such a situation surgery must be approached with extreme circumspection; careful, painstaking preliminary treatment, the nature of which will be dictated by the circumstances existing, and the length of which will be determined by the response of the patient, will often produce such a transformation that an operative procedure which, if hurried, might have been promptly fatal, will in the end be performed with great safety and without complications.

Other illustrations might be cited but are probably unnecessary. Surely they represent desiderata worth considering, and the urologist may be pardoned for his reiteration of the principle which he has adopted as his own guide, namely, that the renal excretory system as a whole be estimated in connection with any contemplated operative procedure within the urinary tract.

Conservatism in Surgery

A readjustment of certain surgical attitudes in relation to the urinary tract has been in process of development in very recent years, and will probably be further emphasized in the future. The fact that the human anatomy is blessed with a superabundance of renal tissue has led to a rather careless regard for it at times. Furthermore, as pointed out by Chute in a thoughtful article, modern methods of diagnosis have led to the disclosure of various minor and hitherto unknown conditions within the urinary channels, many of them of no real consequence, but some of them leading to the development of new operative measures, not a few of which are unnecessary to say the least.

One does not, of course, question the immediate surgical significance of conditions such as pyonephrosis, advanced hydronephrosis, calculi of certain types, neoplasms, obstructive anomalies, or unilateral tuberculosis. Though the calculous problem appears to be of growing complexity, and the question of tuberculosis is still unsettled, all these conditions are commonly and properly regarded as frankly surgical, and as soon as the patient exhibiting one of them is suitable for operation it should be performed without hesitancy. But the situation is reversed when certain other conditions are passed in review. Small pelvic calculi should have a reasonable opportunity to descend of their own accord, and ureteral calculi of reasonable size should never be regarded as primarily surgical; the alert urologic surgeon will always be careful to abandon conservatism in the presence of threatening complications, but in spite of these the immense majority of these stones can be removed by non-operative measures, as has been demonstrated repeatedly by others, and can be further demonstrated by the writer in his own series of cases. Minute calculi in the renal substance had best be left undisturbed; the damage to the kidney incident to their location and removal is usually much greater than the damage that will result from the calculi themselves. Sharp ureteral kinks and angulations, especially when associated with fascial bands or aberrant vessels, are often of great surgical significance; ureteral curves, commonly described as kinks, are usually compensatory, especially following the back pressure incident to pregnancy, are of little or no importance, and are not entitled to the operative consideration they are receiving in some quarters. Acute unilateral hematogenous in-

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fections, the so-called Brewer's kidneys, were at one time subjected to prompt nephrectomy and more than once the same condition has shortly presented itself upon the remaining side—a pathetic picture; the writer long ago satisfied himself that these infections will usually yield to a conservative line of treatment, though very occasionally the threat of an overwhelming sepsis may make surgery imperative. Small hydronephroses can generally be controlled by ureteral dilatation and drainage. The tendency of many renal conditions to be bilateral either immediately or eventually should be an effective check to nephrectomy in such a condition as well as in the management of nephralgias and essential hematurias. If subjected to operation at all, the latter are best handled by decapsulation, with or without nephrotomy; otherwise, the patient, with one kidney gone, may return with the same condition in the other. Before some minor anomaly is adopted as justification for the removal of a kidney which is giving troublesome symptoms, it is essential that pyelographic data shall indicate conclusively that essentially the same condition does not exist, slumbering, on the other side. In several instances the writer has been compelled by such data to abandon a projected surgical procedure and resort to some less radical measure which, incidentally, has usually proven satisfactory, though probably not always completely curative from a symptomatic point of view.

It would be interesting to the urologist, perhaps tiresome to you, to continue this parallelism further. Sufficient has been said, however, to demonstrate the point of view leading to the exhibition of a few illustrative case reports which follow and which out of a considerable number have been selected as types. The writer is simply endeavoring again to add his voice to the group of those who are pleading for thoroughness in the diagnosis and reasonable conservatism in the therapeusis of urinary conditions. When surgery is indicated, it can then be done with a degree of brilliance exceeded in no other field of medicine; when lesser measures are found to suffice, one may, on the other hand, witness himself accomplishing a piece of reconstructive work peculiarly gratifying and well worth all the tax upon his patience and ingenuity that it has involved.

ILLUSTRATIVE CASES.

CASE I.—White male patient, 22 years of age, brought into the hospital in a critical condition, characterized by great prostration, fever of 104°, severe right abdominal pain, exquisite tenderness in the renal area, marked bladder irritability, and urine full of pus. There was no antecedent history of any significance Catheter drainage of the affected kidney was at once instituted and when supplemented by milk injections and other measures gradually brought the patient through a stormy week into a condition which permitted him to get back to his home. For about two months he was apparently well and then suddenly went into another spell, with temperature of 105° and localizing signs as before, with the important exception that now they were transferred to the opposite side of his urinary tract. Since this time he has had several recurrences on the left side and also another on the right. The case is obviously one of recurrent alternating renal infection secondary to a distant focus, which appears to be the prostate gland. The details of his treatment, considerably obstructed by his own indifference, are of no particular interest in the present discussion and will be omitted.

Comment: When first seen the patient was critically ill. The acuteness of the onset of his trouble, its apparent limitation to one side, and the impressive local findings, all suggested the possibility of a unilateral hematogenous infection of the type which was once met by nephrectomy. Such a procedure would have needlessly sacrificed a kidney which subsequently returned to normal, and, more important still, would have left the patient in dire straits when, two months later, his other side became involved. In certain instances, as previously noted, acute renal infections will require active surgery, but these instances are now admittedly rare, instead of common as once supposed. General supportive measures, the stimulation of body resistance by milk injections. intravenous mercurochrome, or otherwise, a flood of water, and the judicious use of the ureteral catheter will save the vast majority of these kidneys.

CASE II.—White, female patient, 27 years of age, wife of a physician, entered the hospital with a temperature of 104°, general abdominal aching, tenderness over an easily palpable right kidney, burning frequent urination, marked pyuria, and a history of a similar attack 2½ years previously. Investigation disclosed bilateral renal infection, slight on the left, extensive on the right, with a right hydronephrosis, from which 75 c.c. of purulent urine was aspirated. Subsequent pyelography, after the acute stage had passed, confirmed these preliminary findings, exhibiting a normal pelvis on the left and a dilated, ill-defined sac on the right. The situation appeared discouraging, but in view of the patient's wish to avoid surgery if possible and also in view of the need of preliminary treatment in any event, this treatment was instituted with no preconceived idea as to where it would lead. In addition to the routine general measures, both ureters were dilated, both pelves frequently irrigated, and the right pelvis drained with retention catheters which were kept in position for periods varying from a few hours to a week. In about 2½ months the patient had a practically negative urinalysis, she was free of all symptoms, the pelvis from which 75 c.c had been aspirated would now hold less than 20 c.c. without discomfort, the pyelogram, though not normal, showed striking improvement, and the dye output in 15 minutes from the right kidney was 15% and from the left kidney 19%, the normal being 15%. By this

time, of course, all idea of radical surgery had been abandoned, certainly for the present.

Comment: It must be admitted that this case was on the border line. However, preliminary treatment seemed desirable, and in the course of this preparatory period it was demonstrated, as is not infrequently the case, that a kidney, apparently hopelessly crippled, will sometimes display an astonishing recuperative power, under patient and persistent care, making anything further unnecessary.

Incidentally, this case also illustrates one of the several reasons which might be advanced for the cystoscopic investigation of any renal infection that does not promptly respond to simple medical treatment. The patient was apparently suffering from an acute pyelitis which, according to some observers, should be treated without instrumentation. The load carried by the right kidney in this instance, however, could have been discovered and relieved in no other way.

CASE III.—White, male, 41 years of age, was brought for investigation of violent renal colic on the left side, followed by sudden relief, which led to the presumption that he had expelled a ureteral calculus into his bladder. Ten years previously he had been operated upon for appendicitis. At intervals since he had suffered considerable pain in his right side and occasionally had passed muddy urine. The explosive character of the present attack completely overshadowed the indefinite history relating to the opposite side, and hence it was with considerable astonishment that a preliminary X-ray plate was found to show nothing in the left side but a congregation of shadows, obviously calculi, in the region of the lower end of the right ureter. The cystoscope revealed no calculus in the bladder, but the edematous, congested, and ecchymotic left orifice indicated fairly clearly that a stone had passed and escaped through the urethra without the patient's knowledge. The left ureter was tightly contracted, but a small catheter was finally passed and brought away cloudy urine containing a sprinkling of pus cells A catheter of standard size was easily passed on the right side, presumably to the pelvis; the urine from this side was clearer but contained somewhat more pus. Aspiration indicated slight retention on the left and large retention on the right. After an intravenous injection of phenolsulphonephthalein no trace of the dye appeared from the right side in 25 minutes, and but 3 per cent from the left side. A pyelogram disclosed a large hydronephrosis and hydro-ureter on the right where the catheter, instead of reaching the pelvis, was found coiled about seven calculi nested in the extreme lower end of the ureter.

With a destroyed kidney on one side and a collapsed kidney on the other, the outlook for this patient appeared very gloomy. His urea nitrogen was 102 mg., his total dye output in two hours but 9 per cent, and his blood-pressure was sharply elevated. A fatal uremia seemed possible at any moment. He was kept under the closest observation and treatment to determine the ability (if any) of the left kidney to recover its function. Slow but steady improvement resulted. At the end of four weeks the patient had undergone a transformation. The left ureter was now well open and the infection in this side had entirely disappeared; a left pyelogram was made and proved normal: dye appeared promptly and the elimination of 14 per cent in 15 minutes was practically normal for one kidney. The right side still showed no function whatsoever. After two more weeks of pre-operative observation the patient was brought back to the hospital and through combined anterior and posterior incisions the right urinary tract was removed, with the exception of about 1½ inches of the vesical extremity of the ureter into which one of the seven calculi escaped and in which it still lies, probably of no clinical importance. The post-operative course of the patient was free of incident, and at no time was there the slightest threat of any uremic complications. Five days after operation his urea was 48 mg. and his dye output 80 per cent in two hours. Thirty days later his urea nitrogen was 20 mg. and his dye output in two hours 5 9 per cent.

Comment: In this case the destruction of the right kidney was so complete that the recovery of its usefulness under any circumstances was out of the question. With its stagnant and infected puddle of urine it constituted a serious menace to the patient and nephrectomy was clearly indicated. In the patient's condition, however, hurried operat on would have been as certainly fatal as a primary prostatectomy in the presence of vesical retention and sharp renal depression. In fact, it appeared at first highly problematical if operation could ever be undertaken. However, the patient's response to treatment was admirable, so that, as a result of six weeks of preparation, a uremic individual who entered the hospital with two kidneys and a function of practically nothing finally left with one kidney and a function that was essentially normal.

CASE IV.—White, female, 32 years of age, entered in the midst of an attack of severe right renal pain which began two days previously and which was now accompanied by high fever, rapid pulse, frequent chills, and great general distress. Eight months before she had gone through a siege of pyelitis of pregnancy requiring catheter drainage, and was presumably having a recurrence of this infection. With a temperature of 104.2°, pulse 120, leucocytosis of 21,700 and 94 per cent polys, and exquisite tenderness over the right kidney anteriorly and posteriorly, the situation, however, appeared more serious. Cystoscopy was performed at once. Urine from the left side was negative; from the right side thick pus was aspirated with immediate relief of pain. Function in the right was reduced to a bare trace of dye in 15 minutes, while on the left 24 per cent appeared in the same period. X-ray defined a shadow in the right renal area not visible in plates made when she was at the hospital during her pregnancy. Subsequently pyelography definitely located this as a calculus in the lowest calyx and gave no evidence of extension of the infection into the kidney substance. Systematic cystoscopic and other treatment was instituted. The character of the pus from the right side and the almost total cessation of function seemed discouraging. The patient, however, as a result of catheter drainage, was almost immediately free of pain and fever, and within a short time her urine was rapidly clearing and the function of her right kidney had been built up to half a normal reading. Twelve days after admission she underwent operation Previous nephropexy made delivery of the kidney quite difficult and pyelotomy in the presence of numerous adhesions would have required extensive dissection. The calculus, however, had been very precisely located and it was a relatively simple matter to remove it through a nephrotomy incision about 1½ inches in length directly over the lowest calyx. Today this kidney is apparently normal, functioning actively and free of infection.

Comment: Preliminary study and treatment here accomplished three important things: Converted a poor risk into a good one, substituted for nephrectomy a procedure which relieved the situation but saved a useful organ, and, finally, by precise loca-

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tion of the calculus, relieved the operation of some serious technical difficulties.

CASE V.—White, female, age 28, came for constant pain in left side of lower abdomen, intermittent fever, and large amounts of pus in urine, varying strikingly in quantity. Two years previously she developed terrific renal infection in the course of pregnancy and became so desperately ill that abortion was induced as a life-saving measure. For a time her condition seemed almost hopeless, but she gradually cleared out of it and finally became relatively well. At that time infection was present on both sides and the right ureter and pelvis were markedly dilated.

Some months later she was quiescent so far as her right side was concerned, but had begun to develop some discomfort in her left side and was also presenting some complications not related to the urinary tract. In spite of frequent exhortation to undergo a further cystoscopic review, she neglected to do this and was then lost to sight until, after a long period, pain finally drove her into the hospital again. A series of cystoscopies now disclosed a very striking picture. The upper urinary tract was infected on both sides, but the condition was much exaggerated on the left. The right side presented a moderate hydronephrosis with dilatation of the pelvis and clubbing and flattening of the calyces. On the left side was an advanced hydronephrosis from which 16 ounces (500 c.c.) or one pint of retained urine was aspirated. No calculi were present and the left ureter was not dilated, the obstruction being apparently due to strictures in the lower and upper ends.

A serious problem now confronted us. Unquestionably a grossly infected hydronephrosis of this degree, is a frank surgical proposition, assuming that conditions are satisfactory with reference to the opposite side. But here the opposite side itself was infected and the seat of a small hydronephrosis. Furthermore, the left kidney, curiously enough, was still performing more than half a normal function. To remove it would throw the burden of this work upon the remaining organ, an event which might readily enough precipitate a crisis on that side. The possibility that the patient would return after a time with a hydronephrosis on the right as large as that removed from the left had to be constantly borne in mind when surgery was contemplated. The outlook seemed cheerless enough in any direction, but certainly there appeared much more to gain than to lose by conservatism for the time being. Systematic treatment, consisting essentially of frequent periods of catheter drainage, was instituted and continued for a long time. In spite of every effort, no permanent change for the better could be effected on the left side; the best that could be accomplished here, as had been anticipated, was the regular unloading of this huge pelvis, relieving the patient of its septic burden, while her general condition was built up and the opposite kidney was getting rid of its own embarrassment and developing a degree of compensatory function sufficient to stand the shock of assuming the entire excretory duty. Eventually a point was reached which appeared to represent the maximum of improvement, with a functional output on the right side of 35 per cent in 20 minutes. The left kidney was thereupon removed and it was interesting to observe the admirable manner in which its companion handled the situation. Two days after operation the dye elimination was 60 per cent. The post-operative course was smooth and the subsequent history to date has been excellent.

Stuart Circle Hospital.

REPORT OF A CASE OF PYLORIC OBSTRUCTION COMPLICATING PREGNANCY.*

By CHAS. W. DOUGHTIE, M. D., Norfolk, Va.

The seeming infrequency of pyloric obstruction as a complication in pregnancy and the many accompanying features of interest prompt me to report the case which follows:

Mrs. L. P. B., female, white, age thirty, married sixteen months, first presented herself at my office on February 18, 1929.

Her chief complaint at this time was (1) pain and tenderness in her pelvis; (2) a sense of pressure upon her bladder; (3) nervousness was a prominent symptom and she felt that she had been running a low grade fever.

Family history: Father died at fifty-eight of an intestinal obstruction. Mother and all brothers (three) and sisters (three) are living and well.

The past medical history disclosed the usual diseases of childhood, toxic goitre, and indigestion associated with heartburn. Hunger pains had been experienced, with remissions, over a period of four or more years.

The past surgical history consisted of a thyroidectomy, about two years previously, and a tonsillectomy.

The menstrual history, revealed that puberty began at thirteen and menstruation was of the twenty-eight day type. The duration was three or four days. The flow was moderate in amount and accompanied by only slight pain. The last menstruation began on the 3rd and lasted to the 6th of February, 1929.

She had been pregnant shortly following her marriage, which she aborted at about the sixth week. She was not curetted, because of a low grade infection and inasmuch as the bleeding cleared up.

General History: Appetite was poor and there was discomfort to a greater or less degree in her epigastrum; bowels were constipated.

Urinary symptoms, such as frequency, nocturia, urgency and bladder pressure were present.

The physical examination with only the positive findings follows: Weight 105 pounds, blood pressure 102/62. The teeth showed evidence of decay, and pyorrhea was present.

The neck showed a thyroidectomy scar.

The heart and lungs were negative.

*Read before the Norfolk County Medical Society, February 24, 1930.

The abdomen was tender upon pressure in the epigastrium near the costal arch; there was also tenderness in lower abdomen, particularly in the iliac fossa.

Pelvic examination showed a nulliparous introitus; the cervix was small and conical; the fundus uteri was small, retroverted and fairly fixed. The left tube was thickened and drooped towards the cul-de-sac, but the right broad ligament was clear so far as I was able to ascertain. The pelvis was exceedingly tender upon examination and manipulation.

A urinalysis of a catheterized specimen was reported to be hazy, acid in reaction, a specific gravity of 1012. There was a trace of albumin present. Microscopically it showed an occasional leucocyte, and 10 to 12 epithelial cells to a field.

She was sent to bed and 5 c.c. of Aolan were given intramuscularly every third day for five doses. After two weeks her acute pelvic symptoms had subsided. Long hot douches were then ordered twice a day.

She menstruated on March 5th and there was nothing unusual about the period.

On March 20th she came in complaining of the usual duodenal ulcer syndrome.

She was sent to bed and put on the Sippy diet with alkalies. On April 2nd the symptoms had not improved, and she complained that even the milk soured.

On April 15th, she had been to her dentist and her mouth appeared to be in fair condition. Her stomach symptoms had much abated. She had failed to menstruate when same was due, about April 2nd.

On May 4th she was vomiting a great deal and her stomach was very sour. She had lost some weight and appeared sick.

Her uterus was then slightly enlarged and there was very little tenderness in her pelvis. She was told that I believed her to be pregnant.

From this time until September 25th she was seen at frequent intervals and a most careful check was made. During this time her symptoms had improved, and she was moderately well, but never quite satisfactory. On the latter date she complained that she was vomiting quite a lot, that her vomitus contained blood and there was constant burning in her stomach.

She was again put on a rigid diet, with alkalies and belladonna and thus we fought along from day to day, trusting for a lucky break which would give her a living baby. All kinds of combinations of diet were tried but none seemed to make her comfortable.

On November 6th she was acutely ill and she was rapidly becoming dehydrated. Her vomitus contained blood.

On November 7th she was admitted to the Norfolk Protestant Hospital.

Her hospital record is as follows: Upon admission her temperature was 97.8, pulse 108, respiration 20. Her chief complaints were nausea, profuse and persistent vomiting (vomitus bloody), loss of weight and strength. Pain in epigastrium of a grinding character. At this time her pregnancy had attained to about 240 days.

The following is the laboratory report:

Haemoglobin 82, erythrocytes 4,280,000, leucocytes 14,600, polymorphonuclears 80, N. P. N. 33.3, Wassermann negative. Her urine showed albumin and a few pus cells. Both the albumin and pus cells increased substantially within the following three days. There was a drop in her haemoglobin to 62 per cent, and the erythrocytes decreased to 3,303,000.

A Lenhartz diet with alkalies and belladonna gave no more relief and lavage of the stomach became more frequently necessary, but same afforded only slight and temporary relief. Her condition each day was growing rapidly worse and the picture was exceedingly unfavorable.

She was given glucose and saline solution freely. After consultation with some of my friends it was decided that the induction of labor was our best bet, so on the morning of November 11th, after a hypodermic of morphia sulphate grs. ¼ and atropin sulphate grs. 1/150 she was removed to the obstetric wing.

A rectal examination revealed that the cervix was fairly well thinned out and the external os was of such size as would admit the tip of my little finger; the head could be induced to engage.

She was carefully prepared and when all was in readiness, after gentle dilatation with my fingers, a number 6 bag was introduced and filled to about three-quarters of its capacity; after which she was returned to her bed.

She was amply provided with glucose and saline, which was repeated at eight to twelve hour intervals.

On November 12th at one A. M. labor pains were recorded as recurring at two to four

minute intervals, and of fair quality, and she was complaining some of backache. At about seven o'clock the bag was expelled; the pains were more forceful and the membranes ruptured a few minutes later.

She had been carried along with gas and oxygen analgesia. At about eight, she was dropped into anesthesia and low forceps were applied. She was delivered of a normally developed premature male child, which weighed five pounds and nine ounces. The placenta was expelled intact, with the aid of a gentle manipulation. Its delivery was followed by the administration of one c.c. of pituitary extract.

The pre-delivery efforts to relieve and support the patient were continued. There was no relief from symptoms, so it was decided to prepare her for operation, by filling her up with saline and glucose, and by digitalization, to further fortify her circulation.

On November 14th (the second day following her delivery), after carefully washing out the stomach, the usual pre-operative hypodermic of morphia and atropin was given.

At 2:18 P. M., under ethylene and local anesthesia, the abdomen was opened. Upon opening the peritoneum, an enormously distended colon greeted us and instantly it rolled out in its entirety. It was distended to the size of a large inner tube (approximately five inches in diameter), thin and transparent. It was finally replaced and packed back as well as was possible, but it was constantly an operative obstacle, the worse when the size of the patient was considered, together with her poor condition.

A hurried investigation of the pyloric region only gave the information that the pylorus was placed high under the liver and well out of sight. The duodenum was adherent, so far as I could ascertain, to everything thereabouts. No further attempt was made to do anything to the pylorus. A no loop gastrojejunostomy was done with great difficulty. The patient was infused with 2,000 c.c. of normal saline during the operation and she left the table at 3:40 with a pulse of 118.

A colon tube was inserted, which was followed by a hypodermic of 1 c.c. surgical pituitary extract with no apparent effect. This was repeated on three occasions,—but there was no relief of the distention.

Digifoline 1 c.c. every four hours was given, till the pulse was below 100 per minute. Hiccoughs, which lasted several days, was a distressing complication. Phlegm and mucus were freely expectorated for several days.

There was very slight nausea but no vomiting. The saline and glucose were largely relied upon. The saline was given by bowel and under the pectorals while the glucose was given intravenously and at times with saline under the pectorals.

On second post-operative day the pulse was ranging from 88 to 96, intermitting, but of fair volume. A rectal tube was left in, and there seemed to be less distention. On the third post-operative day, the intermittency was thought to be due to over digitalization, so the digitalis was discontinued.

Strychnine sulphate grs. 1/60 was ordered every four hours, hoping thereby to contract down the dilated colon. Cibalgine was substituted instead of morphine for pain.

A warm oil and glycerine enema (each 3 ozs.) was given, which was slightly effectual. The distention was much less after it.

A gastric lavage was given (the first and only one following the operation).

On the fourth post-operative day, the abdomen was flat and she was taking very limited quantities of liquids quite well.

Her urine showed albumin, casts, acetone and diacetic acid; the latter two were evidently the result of a misunderstanding on the part of the House Surgeon, who omitted the glucose on the preceding day. Glucose was promptly given and the condition cleared up.

On the fifth post-operative day she was having small dark stools.

On the sixth post-operative day, improvement was marked. She was still having some hiccoughs.

On the seventh post-operative day convalesence seemed well established and continued so smoothly that I was again able to sleep.

The sutures were removed on the twelfth post-operative day. The incision was clean and well healed.

She was discharged from the hospital on November 29, 1929, which was the fourteenth post-operative day.

She has had no nausea, burning, or pain since her discharge, and is taking a liberal but carefully regulated diet.

The above is only a brief of the case, but I trust it will lend courage to those of us who may face a similar situation in the future.

215 *Medical Arts Building.*

THE EARLY DIAGNOSIS OF WHOOPING COUGH.*

By W. AMBROSE McGEE, M. D., Richmond, Va.

Few diseases have had so many different plans of treatment used with so great a lack of uniformity in results as whooping cough.[1] That state of affairs is probably due to such factors as failure to correctly diagnose the disease in its early stages, lack of any generally accepted successful method of treatment, and the scant attention parents ofttimes pay to the disturbance. Little attention is paid by the public and public health bureaus to the appalling number of yearly deaths from whooping cough.[2] If ten thousand children died any year from infantile paralysis, we would undoubtedly be panic-stricken; but let that number of deaths occur from whooping cough and little concern is aroused. If ever the golden rule is to be used, there is no better opportunity than is presented by whooping cough. Unfortunately, parents are often ignorant of the facts concerning the spread of the disease, and even those who know are often very careless about keeping their children away from others. This condition is undoubtedly due in part to the lack of attention paid the disease by health authorities, probably because they recognize that a diagnosis during the first two weeks, the most contagious period, is often very difficult to make.

In epidemics of such diseases as influenza or poliomyelitis, public health authorities frequently advise preventive measures and the steps to be taken to diagnose the disease early. Such information is not usually given for whooping cough, perhaps because health bureaus generally feel that it is impossible to say definitely whether or not a child has the disease before the onset of the whoop.

In the past few years a great deal of experimentation[3] has been done on the isolation of the causative bacillus of whooping cough, and it is now accepted in France[4] that a positive diagnosis can be made several days prior to the whoop by isolation of the whooping cough or Bordet-Gengou bacillus. The difficulty in culturing the bacillus has undoubtedly accounted for the failure of State health boards to adopt that method. Then there are some physicians who feel that germ isolation in whooping cough is not out of the experimental stage. The work of Lawson and Mueller[5] and Sauer and Hambrecht[6] have shown that the germ could be isolated by having the child cough into a Petri dish containing a special medium.

TABLE 1

VALUE OF WHITE AND DIFFERENTIAL BLOOD COUNTS IN SUSPECTED CASES OF WHOOPING COUGH

A.—POSITIVE DIAGNOSIS WITHOUT WHOOP

(WHOOPING SUBSEQUENTLY OCCURRED)

PATIENTS	SEX	AGE	DURATION OF COUGH (DAYS)	WHITE CELLS	LYMPHOCYTES	EOSINOPHILES
J. R.....	F	10 mos.	21	22,000	68%	1%
D. A. M..	F	2 yrs.	14–21	16,000	70	0
B. P. B...	M	8 yrs.	21–28	15,400	69	2
E. C. F...	M	3½ yrs.	14	30,200	78	2
H. J.....	M	1 yr.	21	21,500	77	0
D. M.....	F	4 yrs.	14	19,400	74	1
L. W. M..	M	3½ yrs.	21	14,000	72	3
E.M.McC	F	10 mos.	14	21,000	85	2
R. H. B...	M	4 yrs.	10	12,000	75	1
R. P.....	M	13 mos.	10	14,500	73	1
A. C.....	F	15 mos.	17	46,000	87	1
P. E.....	F	13 mos.	13	18,000	83	1
M. M....	F	8 yrs.	14	26,000	49	17
G. D. M..	M	11 mos.	9	32,000	70	4
J. G. A...	M	2 yrs.	14	25,600	77	1
J. C.....	F	6 mos.	12	14,000	60	1
J. H. M...	M	14 mos.	21	40,200	88	0
A. T. P...	F	4½ yrs.	10–12	28,000	65	2
R. H. P..	M	2 yrs.	7	26,000	67	1
J. T. S...	F	22 mos.	14	26,200	60	0
A. B. B...	F	1 yr.	10	19,200	80	0
B. M.....	M	6 yrs.	14	18,900	56	2
C. S.....	F	15 mos.	14	24,640	64	1
B. R.....	F	4 yrs.	14	22,500	63	4
D. W.....	M	2 yrs.	10–12	19,600	61	1
E. L. P...	M	5 yrs.	14	16,400	52	2
J. E. G...	F	4 yrs.	7	15,600	56	5
L. B.....	F	5 mos.	14	20,000	66	2
D. M. W.	F	7 yrs.	21	14,500	78	1
M. R.....	F	3 yrs.	14	12,000	71	1
M. B. B..	F	8 mos.	12–14	19,600	79	3
B. T. J...	M	6½ yrs.	10–12	24,600	63	1
P. T. W..	F	5 yrs.	14	16,200	75	5
A. D. W..	F	2 yrs.	10	11,500	70	0
H. W. M.	M	19 mos.	8	12,000	61	3
A. M.....	M	21 mos.	10–12	12,800	63	10
J. A. P...	M	4 yrs.	11	12,600	53	7
B. M. N..	M	5 yrs.	12	16,800	48	3
T. S. T...	M	6 yrs.	14	19,800	69	0
F. B. T...	M	2½ yrs.	10	10,000	68	0
A. C.....	F	21 mos.	14	17,860	77	5
A. W. W.	F	8½ yrs.	12	25,000	56	1
F. N.....	F	10 yrs.	14	30,000	74	1
R. D.....	M	1 yr.	12	17,000	74	2
H. C. S...	M	4 yrs.	12	16,400	77	2
V. C. S...	F	18 mos.	10	16,400	53	2

The director of the laboratory of the Virginia State Board of Health had agreed to cooperate with the speaker in attempting to

*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

make an early diagnosis of whooping cough by cultural method, but, unfortunately, the present poliomyelitis outbreak interfered by taking all of its available time and help; and as yet no work has been done along that line. Perhaps the opportunity will soon come and the State laboratory will be able to help in making, not only an early diagnosis, but in determining the length of quarantine, as is done in France.[4]

Three other means of aiding in an early diagnosis of whooping cough are the complement fixation[7] and agglutination tests[8] and white and differential blood counts. The two former methods are more complex, are not used to any large extent, and are not so generally accepted. The white and differential blood count is, however, a most simple and reliable test in helping to make a diagnosis of whooping cough, provided, of course, the symptoms and signs of the disease are carefully taken into consideration. Meuniere[9] was the first to call attention to the value of that test.

A positive diagnosis of whooping cough was made from the character of the cough, presence of an epidemic or history of exposure, the usual absence of any marked signs of bronchitis, laryngitis and post-nasal discharge plus a leukocytosis with an absolute and relative increase in the lymphocytes. The cough, considered suspicious, was an afebrile one, paroxysmal and spasmodic in nature, which increased in severity and was worse at night, and which failed to respond to usual treatment.

TABLE 1

VALUE OF WHITE AND DIFFERENTIAL BLOOD COUNTS IN SUSPECTED CASES OF WHOOPING COUGH

B.—POSITIVE DIAGNOSIS WITHOUT WHOOP

(WHOOPING FAILED TO OCCUR SUBSEQUENTLY)

PATIENTS	SEX	AGE	DURATION OF COUGH (DAYS)	WHITE CELLS	LYMPHOCYTES	EOSINOPHILES
N. B.....	F	4 yrs.	14	14,600	64%	4%
E. C.....	F	4 yrs.	14	21,600	72	6
E. M.....	M	7½ yrs.	14	14,200	60	4
C. C.....	M	2½ yrs.	14	11,000	70	7
G. W.....	M	5 yrs.	14	18,700	87	1
E. E.....	M	4 yrs.	14	19,800	56	11
W. H.....	M	4 yrs.	14	18,060	59	13
P. L.....	M	3½ yrs.	14	14,860	59	6
H. M. R..	F	8 mos.	14	14,200	61	3
V. P.....	F	3 yrs.	14	16,000	68	2
W. M. M.	M	3 yrs.	14	15,400	68	4
L. M. M..	M	3 yrs.	14	18,360	80	2

TABLE 1

VALUE OF WHITE AND DIFFERENTIAL BLOOD COUNTS IN SUSPECTED CASES OF WHOOPING COUGH

C.—POSITIVE DIAGNOSIS WITH WHOOP

PATIENTS	SEX	AGE	DURATION OF COUGH (DAYS)		WHITE CELLS	LYMPHOCYTES	EOSINOPHILES
			COUGH	WHOOP			
J. D. B...	M	3 yrs.	21–28	1–2	17,200	65%	3%
J. M. W..	F	7 mos.	21	4	15,000	58	2
H. J. M..	M	2½ yrs.	21	1–2	14,200	65	0
E. S.....	F	6 yrs.	21	2–3	18,400	72	0
A. E. S..	F	4 yrs.	35	7	18,000	75	2
W. C. M.	M	7 mos.	28	14	24,000	76	0

TABLE 1

VALUE OF WHITE AND DIFFERENTIAL BLOOD COUNTS IN SUSPECTED CASES OF WHOOPING COUGH

D.—NEGATIVE CASES WITHOUT WHOOP

(WHOOPING FAILED TO OCCUR SUBSEQUENTLY)

PATIENTS	SEX	AGE	DURATION OF COUGH (DAYS)	WHITE CELLS	LYMPHOCYTES	EOSINOPHILES
R. W.....	M	5 yrs.	14–21	8,800	42%	2%
D. W.....	M	4 yrs.	14–21	9,600	44	2
E. C.....	F	11 mos.	14	12,400	43	4
M. K.....	F	2 yrs.	14	10,000	38	0
J. C.....	M	14 mos.	21	6,400	44	4
V. P.....	F	18 mos.	14–21	10,200	48	5
N. M. D..	F	5 yrs.	28	8,200	40	1
B. F.....	F	6 yrs.	7–14	9,000	41	2
G. F.....	F	2 yrs.	7–12	7,000	55	0
K. M.....	F	6½ yrs.	35–42	7,600	57	4
K. M.....	F	7 yrs.	14–21	6,600	56	2
F. W.....	M	4 yrs.	14	13,600	43	4
M. S.....	F	8½ yrs.	14	10,800	61	1
D. A. N..	F	3½ yrs.	21	10,200	79	1

White and differential blood counts were usually made after a child had had a suspicious cough lasting from seven to ten days. In fourteen such cases a negative diagnosis was made after a cough lasting from ten to twenty-one days. In no afebrile disease with cough is there so great a leukocytosis with such a high percentage of lymphocytes. The leukocyte count in this series of sixty-four positive cases varied from 10,000 to 46,000, with an average of 19,273 white cells, while 50 to 90 per cent of lymphocytes were noted

with an average of 68.2 per cent. Differential counts were usually made in a vertical direction in as much as one so often finds a greater percentage of polymorphonuclear leukocytes at the edge of a blood smear and more lymphocytes in between. Recently, Gyllensward[10] referred to this arrangement of cells in blood smears and advocated such a procedure as was just mentioned to get a truer and more representative differential blood count.

TABLE 2

EFFECT OF EARLY AND LATE DIAGNOSIS ON THE LENGTH OF THE COURSE OF WHOOPING COUGH

TREATMENT	EARLY DIAGNOSIS			LATE DIAGNOSIS		
	CASES	IMPROVED	PRACTICALLY WELL	CASES	IMPROVED	PRACTICALLY WELL
		DAYS	DAYS		DAYS	DAYS
Ether	22	4.0	10.4	36	4.0	10.5
Ether and Vaccine	13	4.1	12.1	11	4.6	12.9
Ether and Ephedrin	7	3.1	10.9	8	3.4	12.6
Eth., Ephed. and Vac.	6	4.6	12.1	3	4.3	16.3
Vaccine	7	11.8	20.0	8	21.0	35.0
Ephedrin	1	5.0	8.0	11	17.0	26.0
Vaccine and Ephedrin	4	12.0	26.5	0	..	..
Cough Medicines*	1	21.0	35.0	12	14.0	28.0
No Treatment*	0	....	....	6	18.0	39.0

*Approximate length of time.

In those cases in which an early diagnosis was made, the average patient had been coughing thirteen days, whereas, when diagnosis was deferred till the onset of the whoop, the average period of time was 25.5 days.

Theoretically one would expect better results where treatment was begun early. Such proved to be true in the cases of this series, certainly from the standpoint of symptomatic relief, with the exception of those cases in which rectal ether was used. The entire course of the disease was twenty-six and six-tenths days in cases in which blood counts were made, and forty-five and nine-tenths in those cases not diagnosed and treated until onset of the whoop. It is of some possible interest to note that in those cases diagnosed early and in which rectal ether was given early, there was a greater re-

TABLE 3

EFFECT OF TREATMENT ON WHITE AND DIFFERENTIAL BLOOD COUNTS

PATIENTS	AGE	FIRST BLOOD COUNT			INTERVAL DAYS	SECOND BLOOD COUNT			TREATMENT
		TOTAL	LYMPH. %	EOSIN. %		TOTAL	LYMPH. %	EOSIN. %	
J. R.	20 mos.	22,000	68	1	7	11,000	76	2	Ether
D. M.	4 yrs.	19,400	74	1	8	15,200	70	1	Ether
L. W. M.	4 yrs.	14,000	72	3	10	11,200	67	2	Ether
R. P.	13 mos.	14,500	73	1	10	10,400	70	1	Ether
A. C.	15 mos.	46,000	87	1	16	24,000	80	1	Ether
H. C. S.	4 yrs.	16,400	75	3	10	17,000	71	2	Ether
J. G. A.	2 yrs.	25,600	77	1	17	12,860	65	0	Ether and Vaccine
J. H. M.	14 mos.	40,200	88	0	16	24,800	80	2	Ether and Vaccine
A. T. P.	5 yrs.	28,000	65	2	4	12,800	63	1	Ether and Vaccine
R. H. P.	2 yrs.	26,000	67	1	6	18,400	66	2	Ether and Vaccine
L. M. M.	4 yrs.	18,360	80	2	21	8,900	54	4	Ether and Vaccine
B. M.	6 yrs.	18,900	56	2	21	9,700	50	2	Ether and Vaccine
C. S.	15 mos.	24,640	64	1	21	18,000	61	0	Ether and Vaccine
N. B.	4 yrs.	14,600	64	4	21	9,000	67	3	Ether and Vaccine
B. R.	4 yrs.	22,500	63	4	21	14,200	56	2	Ether and Vaccine
D. W.	2 yrs.	19,600	61	1	7	14,600	61	1	Ether and Ephedrin
E. L. P.	5 yrs.	16,400	52	2	10	12,800	54	2	Ether and Ephedrin
M. B. B.	8 mos.	19,600	79	3	10	12,400	70	2	Ether and Ephedrin
P. T. W.	5 yrs.	16,200	75	5	10	12,600	70	4	Eth., Eph., and Vac.
A. D. W.	2 yrs.	11,500	70	0	10	10,800	69	1	Eth., Eph., and Vac.
B. M. N.	5 yrs.	19,000	66	1	11	11,200	56	2	Vaccine
T. S. T.	6 yrs.	19,800	69	0	32	8,200	36	2	Vaccine
E. C.	4 yrs.	21,600	72	6	21	17,600	64	4	Vaccine
E. M.	8 yrs.	14,200	60	4	21	12,200	52	8	Vaccine
C. C.	2 yrs.	11,000	70	7	21	12,000	60	5	Vaccine
G. W.	5 yrs.	18,700	87	1	21	12,000	64	6	Vaccine
J. E.	8 yrs.	11,000	47	2	5	10,800	57	2	Ephedrin
E. E.	4 yrs.	19,800	56	1	21	10,000	45	5	Vaccine and Ephedrin
A. C.	21 mos.	17,860	77	5	21	16,700	73	1	Vaccine and Ephedrin
W. H.	4 yrs.	18,060	59	13	21	16,000	47	19	Vaccine and Ephedrin
P. L.	4 yrs.	14,860	59	6	21	16,000	78	3	Vaccine and Ephredin

duction of white blood cells per day, as was shown by second leukocyte counts. Practically no difference could be detected in the percentage of lymphocytes regardless of treatment before three to four weeks.

TABLE 4

RECAPITULATION OF THE AVERAGE EFFECT OF TREATMENT ON WHITE AND DIFFERENTIAL BLOOD COUNTS

TREATMENT	NO. OF CASES	AVERAGE DECREASE		
		LEUKOCYTES		LYMPHOCYTES PER CASE
		PER CASE	PER DAY	
Ether	6	1041	104	0.5
Ether and Vaccine	9	1088	68	1.5
Ether and Ephedrin	3	1743	194	1.0
Eth., Eph., and Vac.	2	1075	107	1.5
Vaccine	6	864	41	1.7
Ephedrin	1	200	40	...
Ephedrin and Vaccine	4	755	36	0.3

None of the fourteen cases diagnosed as negative from blood counts and subsequently watched for two to three weeks developed a whoop. Conversely, all but fourteen of the series of cases diagnosed as whooping cough subsequent to the blood count developed typical whooping cough. Occasionally one sees doubtful cases of whooping cough which fail to whoop at any time. When a white and differential blood count reveal a leukocytosis with a very high lymphocyte count plus typical symptoms and signs of suspected cases of whooping cough, one is justified in making a positive diagnosis, especially where there is evidence of communcability.[11] This is also true with the isolation of the Bordet-Gengou bacillus.[11] Such cases of whooping cough without whoop are most apt to be seen in institutions. The fourteen cases in this series diagnosed as whooping cough were institutional children.

Besides aiding in making an early diagnosis, the white and differential counts may give some prognostic information. The leukocyte count was considered as evidence of the resistance of the patient, while the lymphocyte percentage was a means of judging the severity of the disease. In this small series of cases lymphocyte percentages of sixty to seventy were usually associated with milder cases than were found with seventy to eighty per cent lymphocytes, while with a lymphocyte per-

TABLE 5

RESULTS IN POSITIVE CASES DIAGNOSED EARLY WITH THE AID OF WHITE AND DIFFERENTIAL BLOOD COUNTS AND LATE BY THE WHOOP

TREATMENT	EARLY DIAGNOSIS				LATE DIAGNOSIS			
	EXCEL.	GOOD	FAIR	POOR	EXCEL.	GOOD	FAIR	POOR
Ether	10	10	1	1	12	19	5	0
Ephedrin	0	1	0	0	0	2	0	7
Vaccine	0	1	6	0	0	0	0	8
Ether and Ephedrin	3	3	1	0	1	4	3	0
Ether and Vaccine	1	10	2	0	2	5	1	1
Eth., Eph. and Vaccine	3	1	2	0	0	2	1	0
Ephedrin and Vaccine	0	0	2	2	0	0	0	0
Cough Medicines	0	0	0	1	0	0	0	11
No Treatment	0	0	0	0	0	0	0	7
Total Cases	17	26	14	4	15	32	9	34
	PERCENTAGE RESULTS OF ABOVE CASES							
Ether	45.4	41.4	4.6	4.6	34.3	54.3	11.4	0.0
Ephredrin	0.0	100.0	0.0	0.0	0.0	22.2	0.0	77.8
Vaccine	0.0	14.3	85.7	0.0	0.0	0.0	0.0	100.0
Ether and Ephredrin	42.8	42.8	14.4	0.0	12.5	50.0	37.5	0.0
Ether and Vaccine	7.7	76.9	15.4	0.0	22.2	55.6	11.1	11.1
Eth., Eph. and Vaccine	50.0	16.6	33.4	0.0	0.0	66.6	33.4	0.0
Ephedrin and Vaccine	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0
Cough Medicines	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0
No Treatment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Total Cases	27.8	42.7	22.9	6.7	16.7	35.5	10.0	37.8

centage of eighty to ninety the patients generally had very virulent cases of whooping cough.

In a comparison of results obtained in cases diagnosed and treated early and those seen late, it was seen that the percentage results were in favor of early diagnosis regardless of the method of treatment. Likewise it was noted that improvement was obtained earlier in the early diagnosed cases, except when rectal ether was employed, the results then being equal.

By means of a simple white and differential blood count it is fairly easy to make a positive diagnosis of whooping cough provided the symptoms and signs of the suspicious case are duly considered. Not only can we expect better results and an earlier improvement where an early diagnosis is made, but such a procedure will eventually result in fewer cases of whooping cough, as children with suspicious coughs will be isolated and quarantined sooner. From a public health standpoint, that factor alone is well worth considering. An additional factor in early diagnosis is that the blood examination may possibly serve as a sort of prognostic agent.

In the near future it seems reasonable to hope for bacteriological aid in seeking an early diagnosis of one of our most fatal contagious diseases. With both the cultural method and blood counts as aids in definitely arriving at an early diagnosis, one will have little excuse for waiting for the whoop before positively deciding whether or not the child in question has the disease.

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DISCUSSION.

DR. LAWRENCE T. ROYSTER, University: It seems a very remarkable thing to all physicians that of all the diseases of childhood the dysentery and diarrheal group and pertuss.s have received the least attention from boards of health, comparatively speaking. Dysentery and diarrheal infections are the cause of more deaths than all other causes combined, and whooping cough causes more deaths than all the other infectious diseases. As Dr. McGee pointed out, we pay no attention to the large number of deaths every year from whooping cough, while we go into frenzy over infantile paralys's.

In the controlling of the paroxysms, a very important feature of the treatment, ether by rectal administration may offer us some promise. I must say that I have never seen the slightest bit of evidence that vaccine as a therapeutic measure in pertussis has ever done the slightest bit of good, and personally I feel that it is of practically no value as a preventive agent.

We do not know how long the infectious stage of pertussis lasts. The disease is probably in its most infectious stage before we know it is pertussis, as a rule. The cause of the paroxysm, as has been brought out in the past, is the damming up of masses of the dead bacilli between the cilia lining the upper part of the respiratory tract. That is an important point, because it is entirely likely that the paroxysms come when most of the bacilli are dead, and therefore the child has done most of the harm it can do before it is quarantined.

I am a little bit skeptical about the blood count. I think it is worth trying, and I hope Dr. McGee will go on and try, but he neglected to tell us the ages of the patients in this series, and we know the great tendency in early life of any infection to cause a lymphocytosis in the child rather than a leukocytosis. Also, we know the actual and relative increase in mononuclear cells is greater in the child.

I do not mean to blame the health authorities altogether, because they have not known what to do, any more than we have. But with the first suspicion of any cough, coming on at night rather than during the day, that patient should be put under quarantine, and when I say quarantine I mean the strictest possible.

In closing, I will say we are all members of some board of health or should consider ourselves such. The physician who does not emphasize the prevention of the spreading of disease as strongly as he does its cure, is not a physician in the strictest sense, and, being members of some board of health, we all ought to preach the gospel of prevention of disease. Not until the medical profes-

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sion recognizes itself in the position it ought to occupy, as the greatest allies of the board of health in preventive medicine, not until then shall we become physicians in the true modern sense of the term.

Dr. McGEE, closing the discussion: I wish to thank Dr. Royster for discussing my paper. I agree with him as to the value of pertussis vaccine. In the few cases in which I have used pertussis vaccines, I have felt the patient received no great value from them, certainly no outstanding or persistent results.

I did not consider the blood count unless the signs and symptoms were very suggestive of whooping cough.

In reference to quarantine, I think something ought to be done; I feel that with ten thousand or more deaths each year we should quarantine more frequently than we do. Perhaps a red or green arm band might be of service.

I think the State Board of Health should attempt to isolate the Bordet-Gengou bacillus; it would not be very expensive, and certainly nothing would be lost by the attempt.

TREE POLLENOSIS.

By HARRY S. BERNTON, M. D., Washington, D. C.
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The early or spring type of hay-fever, caused by the pollens of trees, has hitherto received scant attention. It is possible that this condition has not been fully recognized because of its occurrence at a time of year when ordinary "colds" are so prevalent.

Walker,[1] in his monograph on "Frequent Causes and the Treatment of Seasonal Hay-Fever," reports to have observed twelve patients sensitive to tree pollens. After a brief discussion of the subject, he concludes: "Since the season of pollination of the individual trees continues only from a few days to two weeks at the most, it does not seem essential that treatment be given." More recently, Duke[2] in his textbook has made the following statement: "Finally, the trees with their relatively short season and the comparative scarcity of any single variety were responsible for very few cases. In fact, we did not observe a sufficient number of tree cases to permit the drawing up of substantial statistics."

My experience with tree pollenosis in the District of Columbia has proven more extensive. The beauty of Washington, the National Capital, is enhanced by its tree-lined streets. It has been estimated that 106,565 trees line 500 miles of street-curbing. This number is exclusive of the trees in private yards and alleys. Obviously, there results an unusual concentration of trees amidst a dense population within a limited area. Moreover, the botany of the District of Columbia resembles that of the States, east of and including the Mississippi Valley. In addition, closely related species of trees flourish throughout the remaining sections of the country. It is fair to assume, therefore, that the hay-fever findings in the District of Columbia reflect the conditions of at least one-third of the area of the United States.

Table I indicates that thirty-five or 4.42 per cent out of a total of 791 hay-fever patients

TABLE I
DISTRIBUTION OF TYPES OF HAY-FEVER IN A SERIES OF 791 PATIENTS

Type	*No. of Patients*	*Percentage*
Autumnal—due to the pollen of the Ragweeds	554	70.03
Vernal—due to the pollen of the Grasses, or Plantain	106	13.40
Spring—due to the pollen of Trees	35	4.42
Combined Types		
Vernal and Autumnal	80	10.11
Spring and Autumnal	10	1.26
Spring and Vernal	3	0 37
Spring, Vernal and Autumnal	3	0 37
Total	791	

are sensitive solely to the pollen of trees, and that sixteen patients exhibit an additional sensitiveness to the pollen of the grasses or of the ragweed or to both. In summary, fifty-one patients or 6.44 per cent are affected by the pollen of trees.

Table II contains the list of tree pollens responsible for clinical cases of hay-fever in the order of their numerical importance. The oaks give rise to twenty-three cases of pollenosis or 45 per cent of the total number. The incidence of oak cases commands attention. Balyeat,[3] in his discussion of the relationship

TABLE II
LIST OF TREE POLLENS IN ORDER OF THEIR IMPORTANCE WITH NUMBER OF CLINICAL HAY FEVER CASES.

Pollen	*No. of Cases*	*Percentage*
Oak	23	45 09
Hickory	7	13.72
Sycamore	7	13.72
Paper Mulberry	3	5.88
Birch	3	5.88
Maple	3	5.88
Elm	1	1.96
Poplar	1	1.96
Black Walnut	1	1.96
Ash	1	1.96
Box Elder	1	1.96
Total	51	

of the oak to hay-fever, states: ". . . the period over which it pollinates is short so

that it is not one of the chief causes of hay-fever or asthma." The paper mulberry, birch, and maple have each three cases or 5.8 per cent sensitive to their respective pollens; whereas, only one case has been encountered due to the pollen of each of the following trees:—the elm, poplar, black walnut, ash, and box elder.

The sex and age incidence among the fifty-one patients of spring hay-fever present no difference from the other types of the disease. The male patients number twenty-nine and exceed the female by seven. All age groups are represented. The youngest patient is a boy of five in whom sensitiveness to the maple appeared at the age of four years. The oldest patient is a man of sixty-five who developed sensitiveness to the oak pollen at the age of sixty. It is noteworthy that the seven patients who are affected by the pollen of the hickory are males; whereas, six of the seven patients affected by the sycamore pollen are females.

The authors, previously quoted, convey the impression that the period of pollination of trees is short and that the period of symptoms is accordingly much shorter than obtains in the vernal and autumnal form of the disease. The trees may be readily classified into two groups:—the early bloomers and the late bloomers. In the District of Columbia, the alder, hazelnut, elm, maple, and poplar constitute the group which shed pollen in February and March. Nearly all the remaining wind-pollinated trees begin to bloom in early or mid-April and continue to do so until the end of May. In fact, there is an over-lapping of the spring and vernal season; for towards the end of April, poa annua, one of the early grasses, begins to shed its pollen and excite symptoms of distress in the very sensitive vernal cases. Attention is directed to field studies which have appeared in an earlier publication.[5]

The average duration of symptoms in spring hay-fever is one month. In some cases the symptoms may continue for six weeks. The season may extend over a period of eight weeks in highly sensitive individuals. It is obvious that climatic conditions profoundly influence the pollination of all plants. The terms, "early spring" and "late spring," denote an early or delayed advent of conditions favoring the blooming and development of plant life. It must not be supposed, however, that all trees of a given species pollinate at the same time. There is a difference in time of pollination not only between members of the same family, but also members of the same species. Thus, trees on city streets bloom earlier than those in the country because of the heat retained by the pavements. The same holds true of trees situated on the sunny side of the street as contrasted with those on the shady side. I have noted that the oaks on my street with southern exposure bloom two weeks earlier than those with northern exposure. For similar reasons, the catkins situated on the tree-tops will mature before those on the lower branches. As a result, susceptible individuals are subjected to a series of successive bombardments with pollen granules, at first from trees on city streets, then from trees in the suburbs, and finally from trees in open country and woodland.

The period during which tree pollens are capable of causing symptoms of hay-fever has been underestimated. Of course, there are natural agencies which tend to destroy the pollen grains, either in mature or immature form. Heavy rains will clear the atmosphere of ripened granules and promote their decomposition. Unheralded frost or snow will not only mar the beauty of springtime but also destroy partially developed blooms.

The symptoms of spring hay-fever are identical with those of the later varieties. They are referable to the nose, throat, eyes, ears, and skin. Paroxysmal sneezing, stuffiness of nose, profuse coryza, and lacrimation are distressing but not distinguishing symptoms. The itching of the mucous membranes which are most exposed and most accessible to environmental agents is, however, of diagnostic importance. Thus, the itching of eyes, of nose, of roof of mouth, of back of throat, of ear canals, and of scalp is evidence of irritation by a foreign body.

Asthma, the most dreaded complication, has made its appearance in 50 per cent of the spring hay-fever patients. In a few individuals, the intensity of the eye-symptoms has masked the diagnosis of pollenosis. A student, aged seventeen, reports swelling of eyelids accompanied with sensitiveness to light, lacrimation and a muco-purulent discharge, as the initial symptoms of his hay-fever due to the pollen of the hickory. One other patient who is sensitive to the pollen of the paper mulberry has her vision impaired because of conjunc-

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tival swelling; in addition, she suffers during the season from an irritable urinary bladder. Two patients, in my series, have shown allergic skin manifestations during the period of symptoms. One patient, with sensitiveness to the pollen of the maple, develops lesions resembling psoriasis which disappear with the cessation of his hay-fever. He also presents the rare complication of intestinal bleeding towards the end of the season. The other patient, a boy of sixteen, has had hay-fever and asthma for thirteen years. His symptoms are ushered in each spring by the pollination of the oaks. A weeping dermatitis, involving the folds of skin of the flexor side of the elbows, of the groins and of the chin extending down on to the neck, has tended to make him "perfectly miserable."

It is quite likely that spring hay-fever cases may escape correct diagnosis because their symptoms suggest the "common cold." The early type of hay-fever occurs at a time of year when with the changing of seasons respiratory infections usually prevail. The itching of mucous membrane is especially characteristic of pollenosis. It helps to distinguish the disease from the ordinary "head cold" or "grip." The average hay-fever subject can readily differentiate between the sneezing of his affliction and the sneezing of infection by the presence or absence of itching.

The diagnosis of hay-fever is suggested by the seasonal occurrence of symptoms and is confirmed by cutaneous tests with pollen. In twenty-three or 45 per cent of the patients, skin tests readily revealed the offending pollen. Thus, a male, aged forty, has been a victim of hay-fever for four years. His season extended from the middle of April until the middle of May. A series of cutaneous tests was performed with twenty-one tree pollens, of which sycamore pollen was the only one to give the characteristic positive reaction. A single positive skin reaction, similar to the case illustrated, simplifies the matter of diagnosis and of treatment. In 53 per cent of the cases, however, multiple positive skin reactions conspired to make the diagnosis difficult. A multiplicity of positive skin tests by no means denotes that the mucous membranes are sensitive to those pollens which provoke skin reactions. Nor does this fact justify the administration of extracts of all the pollens which yield positive skin reaction.

The significance of "group reaction" in routine testing should be borne in mind. It indicates that the pollens of closely allied families of plants have in common a characteristic structural arrangement of the protein molecule. It is the latter which give rise to the positive skin tests. This phenomenon of "group reaction" is better appreciated and more easily interpreted through the work of Hitchcock and Standley.[6] These authors have arranged and numbered all plants in the District of Columbia consecutively according to generic relationship. For example, all the grasses are included in family 16, and the ragweeds in family 152.

The following case history will serve to illustrate the points worthy of emphasis and essential to a correct diagnosis. A student, aged seventeen, had been a hay-fever victim for seven years. The duration of symptoms extended from the middle of April to the end of May. He was tested on two occasions with a total number of twenty-two pollens, eleven of which yielded positive skin reactions. These included pollens of nine trees and two grasses. The list presented in Table III embodies the family number and dates of pollination of the trees, the pollens of which reacted positively. The pollens which gave negative cutaneous reactions were obtained from the trees listed in Table IV.

TABLE III
POLLENS THAT REACTED POSITIVELY

Name of Tree	*Family Number*	*Date of Pollination*
Black Walnut	36	May 3
Hickory	36	May 3
Ironwood	37	April 15
Hazelnut	37	February 22
Alder	37	February 22
Black Birch	37	April 15
Beechnut	38	May 2
Chestnut	38	June 15
Scarlet Oak	38	April 15

TABLE IV
POLLENS THAT GAVE NEGATIVE CUTANEOUS REACTIONS

Name of Tree	*Family Number*	*Date of Pollination*
Crack Willow	34	April 15
White Poplar	34	March 20
Mock Orange	40	May 18
Paper Mulberry	40	May 1
White Mulberry	40	May 1
Honey Locust	82	May 8
Box Elder	97	April 8
White Ash	124	April 9

It is noteworthy that members of families 36, 37, and 38, all closely allied, have given

positive skin reactions. This is a striking example of group reaction. The families of trees numbered 34, 40, 82, 97, and 124 have given negative reactions.

Symptoms of hay-fever in the patient under consideration were well marked about April 15. The ironwood, black birch and scarlet oak, the positive reactors, were advanced in pollination on that day, as was the crack willow in the group of negative reactors. A botanical survey of the District of Columbia has revealed the fact that the number of ironwoods and black birches is small and that these specimens are found chiefly in the parks. The oaks, however, are numerous and are used extensively in lining the city streets.

Field observations, when correlated with clinical symptoms and with skin tests, will frequently suggest the guilty pollen. Final judgment must be based, however, on the subcutaneous reaction to a small quantity—three to five pollen units of the pollen extracts in question. A positive subcutaneous reaction consists of a diffuse swelling at the site of injection, accompanied with redness and a sensation of heat and of itching. The subcutaneous reaction to pollen protein furnishes more specific and diagnostic information than the cutaneous or intracutaneous reactions.[7] Therefore, in 55 per cent of the spring hay-fever cases showing multiple positive skin reactions, supplementary subcutaneous tests with minute quantities of pollen extract have determined the exciting cause of the disease.

It is of interest to list at this time the tree pollens which have been found not responsible for clinical cases of hay-fever:—arbor vitae, alder, blue beech, beechnut, boxwood, butternut, chestnut, elder, ginko, black gum, sweet gum, hazelnut, ironwood, larch, honey locust, mock orange, pine, tree of heaven, and willow.

The duration and severity of symptoms compel patients with hay-fever to seek relief from their distress. There is no justification in any doctrine which would deny treatment to 6.44 per cent of hay-fever victims.

The requirements for the successful treatment of tree-pollen sensitive patients are similar to those which govern the treatment of the vernal and autumnal forms of hay-fever. These have been adequately discussed in the literature. The pre-seasonal treatment which should be begun six to eight weeks prior to the usual date of onset of symptoms is the treatment of choice. However, seasonal treatment, as advocated by Vaughan,[8] will afford gratifying relief to those who present themselves during the acute stages of their affliction. Correct diagnosis of the offending pollen and the administration of a potent pollen extract are of fundamental importance.

Summary and Conclusions

1. Fifty-one or 6.44 per cent out of a total of 791 hay-fever patients have been found sensitive to tree pollens.

2. The pollens of the oak, the hickory and the sycamore are the chief excitants of early or spring hay-fever, in the District of Columbia.

3. Tree pollenosis is likely to be confused with the "common cold."

4. The symptoms of tree pollenosis may be prolonged in duration and severe in character. Asthmatic symptoms have been present in 50 per cent of the series, herein reported.

5. Regional field surveys are of paramount importance. One hour in the field is worth three hours in the library.

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SURGICAL TREATMENT OF PELVIC INFECTION.

By G. H. REESE, M. D., Petersburg, Va.

The surgical treatment of pelvic infection, as understood and practiced today, is dictated largely by its etiology.

Of the three main groups into which this affection is divided, namely: the gonorrhoeal, the puerperal, and the tubercular, the first and last, under certain well understood conditions, lend themselves readily to extensive surgical intervention; while the puerperal variety, on account of its streptococcic origin, rarely, if ever, presents a safe indication for surgical effort.

Of these groups, the gonorrhoeal is by far the most benign as well as the most prevalent, constituting from 50 to 75 per cent of all cases; the tubercular presents about 7 per cent; while the more fatal puerperal type accounts for the remainder.

The pathology of gonorrhoeal pelvic infection is found mostly in pus-tubes, tubo-ovarian abscesses, pelvic or abdominal abscesses, suppurating or sclerotic ovaries, peri-appendicitis, adhesions, and a uterus usually diseased and retroverted, particularly in chronic cases.

The onset in this type of pelvic disease may be stormy or relatively quiet. It may be delayed weeks, months and even years after the external genitals and cervical glands have become infected. At times gonorrhoeal infection seems to produce but little influence on the peritoneum beyond a mild congestion and toxemia. On the other hand, it frequently produces symptoms and signs of a fulminating diffuse peritonitis, which, however, is rarely persistent and almost never fatal.

So well known has this outstanding fact of gonorrhoeal infection become that surgical treatment of this condition has been radically changed.

Acute salpingitis, uncomplicated, is no longer regarded as an emergency operation, or even as an operative condition.

The stormiest of these cases almost invariably begin to subside as soon as they are placed in bed with an ice-bag to the abdomen, and given appropriate symptomatic treatment. This is true of the early peritoneal irritation caused by a purulent tube, as well as pelvic and tubo-ovarian abscesses that are encountered in the pyrexial stage. The modern treatment of these cases, first, last, and always, is to put them to bed and try conservative measures first. This almost uniformly succeeds in controlling the more distressing symptoms, and frequently a tremendous amount of pathology disappears, and the patient may find later any sort of an operation to be undesirable. In quite a number of these cases recovery of the generative organs seems to be complete, as proved by a subsequent pregnancy.

If, however, the patient fails to respond to this conservative treatment within a few days, it is unwise to delay. Careful examination should be made for bulging tubes, or a localized abscess, that might be incised and drained. When such are present, they are generally low in the pelvis, and are readily evacuated through the vagina. This is very easily done when the mass presents in the cul de sac, but when the tubes have not prolapsed it is much more difficult. In such cases a free incision should be made into the cul de sac, the fingers passed up the posterior surface of the uterus, freeing any adhesions met with, until the mass or masses are clearly and distinctly outlined from adjacent structures. Then, with the finger as a guide, the abscess or abscesses may be opened with a long pair of curved forceps, a drain inserted, and this acute condition quickly relieved with a minimum of danger and discomfort to the patient.

This relieves permanently about one-half of these cases. It fails to give relief to the other half, because of visceral adhesions and ovarian damage, the latter brought about by contracting adhesions, sclerosis, or infection. When a later operation has to be done, it is performed in a pelvis that has been cleansed mostly by nature's method. The surgeon's work is then constructive. He frees adherent structures, mobilizes and restores to normal position the uterus, removes the appendix, seeks to conserve tubes and ovaries as far as possible, and peritonealizes all raw surfaces. Every effort should be made to conserve tubes and ovaries in the young. This is best done by the conservative measures outlined above. It is impossible in an acute or subacute inflammation to tell how much of anything to remove. A purulent ovary demands removal at operation. Nature might, if not thwarted, use a better method of eliminating this infection.

In women past forty or, perhaps, thirty years of age, provided they have children, conservatism is not so important; and in the face of marked pelvic pathology, the surgeon is perhaps wise to make a clean sweep of all pelvic organs at once, rather than have succession of gynecological operations.

The uterus, tubes and ovaries, if badly diseased, should be removed without hesitation,

the uterus being removed by a supravaginal incision, and the cervical canal burnt out or cut out for the double purpose of obliterating a cervical discharge and the possibility of a future malignancy. If the cervix is badly diseased, a total hysterectomy should be done. If both ovaries are removed, the uterus should also be removed. It is then a useless organ, usually diseased and, if left, is almost certain to cause trouble.

This is a sketchy presentation of the ideal way of treating these cases of gonorrhoeal infection. It has, however, its drawbacks. It requires almost unlimited hospital facilities, or a fund of private wealth for its consummation. The minimum time required is from six to nine months after defervescence. It is a time-consuming and expensive procedure. There is no question, however, of its efficacy from a strictly surgical standpoint.

Simpson reports 475 consecutive laparotomies for pelvic infection of tubal origin, treated ultra-conservatively, with but four deaths. Other surgeons adopting his methods have reported approximate results. This shows up the old minimum mortality of from 8 to 10 per cent, when operating radically in the face of acute infection.

But, as stated above, the question of hospitalization and financial responsibility enters here as a very practical complication of an ideal scheme, prompting surgeons to seek a happy medium and find a relatively safe, as well as economical point for the disposal of these patients. All of these agree that defervescence and a return of leucocytosis to normal mark the earliest point at which an operation can be done with a fair degree of safety. At this stage the inflammation has by no means subsided, the tubes are full of pus, but the infection has lost most of its virulence, the body has developed resistance, and extensive operations may be done with but little reaction as a rule, regardless of the amount of pus present. Drainage even may be dispensed with in these cases, with seeming benefit, provided hemostasis is complete and no necrotic material has been left on the wall of an old abscess. In fact, the less drainage these cases get after the focus of infection has been removed, the better they seem to progress.

This conservative treatment is applicable to all acute pelvic infections of gonorrhoeal origin, whether primary or whether the result of acute exacerbations of long standing infections.

These latter are often the most dangerous of all on account of becoming the seat of a mixed infection from migrating bacteria from the bowel, or other sources of infection. Oftimes colon bacilli are found in these abscesses, as well as staphylococci and streptococci. Hence, the urge of wariness in considering radical measures in the face of acute pathology.

Kelly states the case for conservatism, as follows:

"1. An acute gonorrhoeal salpingitis almost never ends fatally.

"2. Symptomatic recovery is almost invariable.

"3. The functional integrity of the tube is not always destroyed by the disease, as pregnancy may follow.

"4. Operations performed on the acutely inflamed pelvic organs and peritoneum are accompanied by much bleeding from many points and are provocative of adhesions.

"5. Plastic procedures necessary to obliterate raw surfaces are impossible."

And it may be repeated that extensive operations on acute inflammatory conditions invariably carry a high mortality.

The surgical treatment of puerperal infection has been the cause, perhaps, of a greater diversity of opinion and procedures than any other disease known to medicine. In later years, due to a better knowledge of bacteria and their habits, a kind of nihilism has arrived to supplant the various operative efforts formerly indulged in. DeLee says, "For the last ten years I have practically dispensed with local treatment in puerperal infection, being convinced that it does more harm than good. Only if the woman is having uterine hemorrhages do I interfere, and then by packing the uterus with 2 per cent iodoform gauze to stop the flow, and aid the expulsion of the retained masses causing it." This infection is usually streptococcic and is essentially a cellulitis, differing markedly from the gonorrhoeal which has a predilection for mucous membranes. It generally starts in the uterine wall, invades the broad ligaments and pelvic fascia, where it may remain, or it may continue to spread until the tubes, ovaries and a large part of the peritoneum are involved. If the uterus contains a detached mass of septic placental tissue or membranes, and the cervix is patul-

XUM

ous, it may be removed by sponge forceps, a dull curette, or the fingers. It is questionable whether any dilatation of the cervix should be done for any reason other than hemorrhage. The removal by any means of a partially detached placenta, or membranes, in face of an infection, merely opens up fresh atria for more infection. It is the opinion of many if not most authorities that nature's method in these cases cannot be improved upon by our present groping efforts.

It should be remembered that curettements, dilatations, irrigations and manipulations of any kind in this condition, are just as illogical as the same procedures would be in a case of erysipelas or a streptococcic sore throat.

The offending organisms cannot be reached by these methods. The chills and fever are due to infection far removed from the uterine cavity. Those in the detached or partially detached membranes may often be removed without a particle of benefit to the patient, but often to her undoing.

Whenever an abscess or any other collection of pus is found, it should be incised and drained. This should be done wherever possible by the vaginal route, because of the smaller disturbance created and the better drainage secured.

There are two other operations that are employed in some of these cases, that would be of marked benefit if the indications for them were more clearly marked. They are the extirpation of the uterus and the ligation of the pelvic veins, with a view to stopping the progress of a thrombophlebitis.

It is generally admitted, according to DeLee, that in the following conditions, in all of which the local lesion is the predominant factor, hysterectomy is justifiable:

"1. Rupture of the uterus with infection, perforation of the uterus with beginning peritonitis, or perforation of the uterus during local treatment of an infection within it.

"2. Infection of a fibroid, or when a fibroid has been much bruised by an operative delivery and infection is feared.

"3. Cancer of the uterus.

"4. Infection with molar pregnancy.

"5. Abnormal adherence of placenta with infection.

"6. Incarceration of all or of a part of the ovum, for example, missed abortion, or labor with infection.

"7. Uterine abscesses.

"8. Gangrene of the uterus."

The mortality of hysterectomy in these cases is high, the abortion cases attaining 43.3 per cent, while the others are from 51.8 to 75 per cent.

There seems to be but little to recommend such treatment except in recent cases of rupture or puncture of the uterus and malignancy.

Likewise, the ligation of the pelvic veins has yet to prove its superiority over the conservative treatment.

Regardless of operative treatment, every effort should be made to conserve and increase the vital forces of the patient. While of doubtful value, anti-streptococcic serum and vaccines may be tried, blood transfusions and fluids pushed, and other proper symptomatic and supportive treatment administered.

When recovery ensues, it is usually complete and does not leave the pelvic organs crippled and cluttered up by adhesions, as does gonorrhoeal infection. Its chief danger is sepsis and peritonitis, or both. Sepsis is almost invariably fatal. The peritonitis is treated as any other peritonitis except that the drainage should always be by the vaginal route. Rarely are there any tubes, ovaries, or adhesions to be removed or freed, following this infection. When the fever subsides, the patient is, as a rule, well on the road to recovery.

The tubercular variety of pelvic infection is secondary as a rule to a pulmonary focus. It should be treated as an ordinary tubercular case. If the symptoms become aggravated, the treatment is that of tubercular peritonitis. It is generally found only with extensive peritoneal involvement, and is usually an extension of this disease. There are two varieties: the moist and the dry just as in tubercular peritonitis. The moist variety lends itself to operation, which consists of opening the abdomen, the removal of all possible tubercular masses, and closing the wound without drainage. This should be followed by a vigorous effort to build up the patient's resistance. While the reason for operative benefit in these cases is not clear, it is surprising to note the improvement following surgical effort that a large percentage of these cases present.

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3 *North Adams Street.*

A SIMPLE VEIN OCCLUDER.

By HOWARD L. SMITH, M. D., Washington, D. C.

The treatment of varicose veins by the injection method has again been revived and is now definitely established as the most conservative method in effecting a cure. For the past year we have employed this type of therapy in all uncomplicated cases, or unless a definite contraindication has been present.

The various methods, outlined by eminent men who have devoted considerable time to this work and who have contributed valuable information to practicing physicians who have not had the advantage of research in large out-patient clinics, have been followed and it has been found that with the proper technique, the desired result can be accomplished with simpler and less toxic solutions.

Various devices prescribed, in an attempt to occlude venous circulation about the point of injection, have been employed, all of which have been more or less effective, but most of them requiring the aid of one or more assistants. I have devised a simple but practical implement to overcome this obstacle, which is in the form of a vein occluder and which we believe will be helpful to those doing this work in general practice who do not have available assistants. The entire procedure may be carried out in your office or in the home of the patient, without any additional help.

This device consists of an annular ring, made of any suitable substance of solid consistency, and is molded to suit the operator as regards size and shape. Practically all physicians will be able to find among their antiques an old hard-rubber uterine ring pessary which would answer the purpose and could be formed into the desired shape by immersion in warm water. To this is fixed a heavy cloth or elastic tape, about two feet long and about one inch wide, to the short end of which is attached a buckle as shown in Figure 1.

The center of the ring is placed over the point of injection and the tape is wrapped tightly about the leg in a spiral manner, at first downward across the end, and then upward through the buckle, drawing the tape taut and fixing it in this position. Thus, regional occlusion about the vein to be injected is established as well as venous stasis of the superficial veins of the leg below this level. The injection is then made, after which the ring is left in position for a few minutes, the time depending upon the solution used.

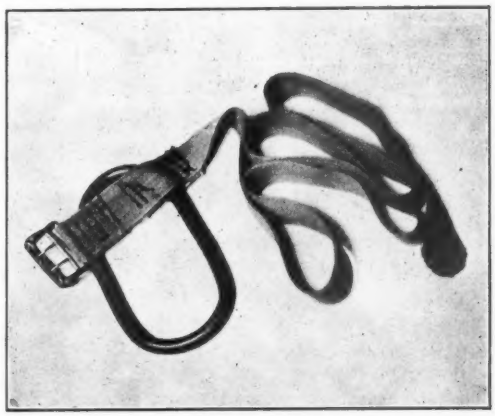

Fig. 1.—Shows device improvised for use in injecting veins.

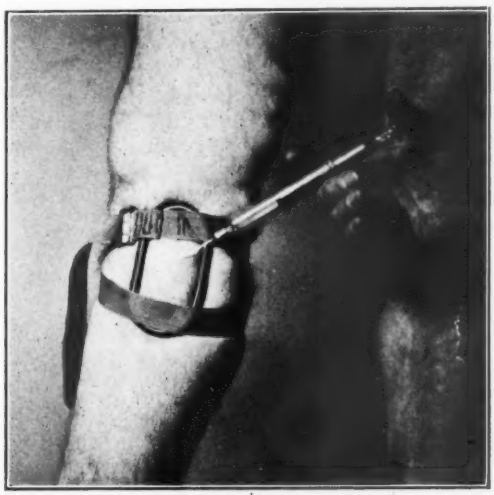

Fig. 2.—Shows manner of injecting veins.

It has been found that with this device better results are obtained because the solution is held within the vein for a longer period of time and the simpler and more desirable irritants, such as sodium chloride and glucose, may be employed with impunity, thus eliminating the complications sometimes seen with

the use of stronger and more dangerous solutions.

This type of occluder may be used over any portion of the leg and we believe it is well worth a trial by those doing this type of work.

1801 *Eye Street.*

PSEUDOCYESIS.*†

By J. BAY JACOBS, M. D., Washington, D. C.

The incentive for writing this paper is the relatively large number of cases of spurious pregnancy that sought admission to the obstetrical clinic of Georgetown University Hospital—all within a short period of time. This subject is treated in every text-book of obstetrics and all practitioners sooner or later have their experiences with it.

The definition has been confusing at times, for some authors have reported cases of missed abortion which they called pseudocyesis. In reality these patients are not pregnant, and the condition is best expressed by Williams'[1] phrase, imaginary pregnancy. The symptoms that women regard as diagnostic of pregnancy are the cessation of menses, enlarged abdomen, and the "feeling of life." If coupled with these there exists an underlying or subconscious mental complex, which gives the patient a feeling of assurance as to the existence of pregnancy, one can readily understand why the diagnostic ability of the physician has been baffled, and why, even after the diagnosis of pregnancy has been disproved by careful examination, it is a major task to convince the patient as to her true condition. The old adage,

"Woman convinced against her will,
Is of the same opinion still,"

may be offered as an explanation for the embarrassment and difficulty that may confront the diagnostician.

Women near the menopause form the majority of these patients. The fact that most of them have had children previously does not simplify matters. At this time the periods are generally irregular and scant; the patient begins to take on fat, especially in the abdomen and breasts, causing enlargement of these parts; and the movement of gas in the intestines, or the contraction of the muscles of the abdomen produce the sensation of quickening. Some of them give a history of irregular bleeding during their former pregnancies. Cases of conception occurring a few years after the climacteric have been reported. Young women form a fair percentage of the cases. They sometimes give a history of irregular menstrual periods normally. Several of the signs and symptoms of pregnancy may be present, and should the patient be unmarried she will usually admit sexual indulgence.

Cases are found with no apparent cause; others may be due to carcinoma of the uterus, fibroids, ovarian cyst, ascites, reflexes from the pelvic organs, a phantom tumor that disappears under anesthesia, or a spasm of the diaphragm with a relaxation of the abdominal muscles. Then there are those of nervous or mental origin, such as the desire to have a baby or the dread of having one; in illicit intercourse or seduction, intention of effecting marriage; and imposters convicted of murder hoping for postponement of execution.

Rarely, the spurious pregnancy is terminated by a spurious labor, the pains simulating parturition even in those who never observed anyone in labor. One such case is included in my series.

It is readily seen that if the intentions are to deceive, it is not difficult. Oftentimes in the husband's mind there is no doubt of the existing condition, for Gould and Pyle,[2] in the Anomalies and Curiosities of Medicine, report the case of a multipara confined to bed for fifteen months, during which time she did not cohabit, but developed signs and symptoms of pregnancy, the diagnosis being affirmed by a midwife; and the husband gave up in despair when, at the end of eleven months, she went into labor, and delivered a mass of hydatids.

Another amusing occurrence is the woman who, when told that she was not pregnant, triumphantly squeezed lactescent fluid from her breasts, and said she could feel life, and left to consult a more sympathetic accoucheur. It is interesting to know that men who are accustomed to vomit in sympathy with their pregnant wives can generally be depended upon to perform this function even when the pregnancy is imaginary.

From October 1, 1924, to June 3, 1927, seven patients attended the prenatal clinic at Georgetown who believed themselves pregnant, when they were not. Accurate histories were taken and all received a complete physical and ob-

*Read before the Georgetown Clinical Society, March 20, 1928.
†From the Department of Obstetrics, Georgetown University, School of Medicine.

stetrical examination. Follow-up visits were made to the dispensary over a period considered long enough to justify any opinion or diagnosis derived at during this study.

Five of the patients were colored and two were white; this is probably due to the preponderance of colored patients that attend our clinics. The ages varied between eighteen and forty-five years, two being eighteen years old. A brief discussion of the cases follows:

1. C. G., eighteen years old, had a baby two years before. She missed five periods, felt life, had toxic signs and symptoms, but was not pregnant.

2. E. A., eighteen years old, first menstruated at fifteen; periods regular every twenty-eight days, lasting six days; and missed three periods before coming to the hospital. Her systolic B. P. was 140, and she complained of spots before her eyes, headache, dizziness and heartburn. Urinalysis was negative. Aside from the normal findings at examination, the skin on the abdomen and chest was covered with a pigment rash, which was confirmed by the dermatologist. Primary areolae and a linea nigra were present.

3. P. G., twenty-eight years old, referred from gynecological dispensary June 3, 1927. First menstruated at twelve; periods regular. Missed eight periods, and came to hospital giving a history of nausea and vomiting and complaining of progressive enlargement of the breasts and abdomen. Some toxic symptoms were present and she could "feel life." On examination, she was found to have a retroverted uterus which could be felt only with difficulty, and the right ovary was palpable, slightly enlarged and tender.

4. M. C., thirty-five years old, missed three periods and come to prenatal clinic. The abdomen was large and rigid; the breasts were large and contained colostrum. After missing several more periods, and being able to feel life, she was discharged as not pregnant.

5. S. W., twenty-one years old, came to the clinic with a gynecological history of irregular menses, pregnant once, and delivered in 1922. This patient was large and fat and had amenorrhoea, coming on four years after the birth of her baby. There was morning sickness lasting two weeks, and Hegar's sign was positive. At five months she could feel life and had toxic symptoms. The amenorrhoea lasted ten months.

6. M. C., forty years old, a multipara, had her last baby ten years before. When first seen she had missed four periods; she gave a history of morning nausea, and said her weight two months before was 160 pounds. She was followed through eight months of imaginary pregnancy, during which time she felt life at the proper time, and prepared her baby clothes. The breasts and abdomen became progressively larger and by the end of the seventh month she had gained twelve pounds. There was no doubt in her mind as to the existence of pregnancy, and the husband assured me that he could see and palpate the motions of the baby. Her friends also remarked that she was noticeably pregnant. On examination, she had a retroverted atrophied uterus. It took several months to convince this woman that she was not pregnant.

7. M. W., about forty-five years old, had a normal menstrual history. She had had six children and two miscarriages. Last pregnancy occurred in 1917.

F. D. L. P. was February 20, 1925; E. D. C. was November 27, 1925.

Came to dispensary October 16th, presumably eight months pregnant. Had an amenorrhoea; abdomen and breasts were enlarged; felt life; colostrum was expressed from both breasts, and she was positive of being pregnant. On November 21, 1925, a few days before the estimated date of confinement, she went into labor. Two senior medical students stayed with her several hours, while she was having recurrent pains about every five minutes, when suddenly there was some vaginal hemorrhage. They 'phoned me and said that they had a placenta previa. On examination, she was found not pregnant, but was sent to hospital and admitted to gynecological ward. The only explanation I can offer for the hemorrhage was the return of her menstrual periods, with perhaps cramps, enhanced by the belief that she was pregnant and at term. She refused to listen when told that her pregnancy was spurious.

The advent of routine obstetrical examinations has done much to eliminate embarrassment for the doctor. It is his function to tell the patient whether she is pregnant and when to expect her baby, rather than have her inform him and engage him for a certain date, at which time she expects to be confined. The gain in weight, which is a marked sign, falls

off rapidly, sometimes as fast as half a pound a day, after the woman is made to recognize her delusions.

Because the condition most frequently occurs at the approach of the menopause, and manifests itself by the peculiar symptom-complex already described, it seems probable that an improper balance of the glands of internal secretion and especially ovarian dysfunction are the most important etiologic factors.

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The Chastleton Hotel.

STERILIZATION WITHOUT UNSEXING: A NEW OPERATION FOR STERILIZING THE FEMALE IS DESCRIBED.*

By CHAS. W. PUTNEY, M. D., Staunton, Va.

Since the State of Virginia has seen fit to make certain advances in its legislation, whereby it is now legal to sterilize certain types of

Fig. 1.—First step in operation for excision of the cornu.

patients confined in its institutions, and as consulting surgeon to the Western State Hospital, I have become evry much interested in this subject. It is indeed an honor and a privilege much appreciated, to be asked to present the surgical aspect of this subject at this time.

I will not touch on the indications other than to remind you that sterilization, at least in the female, is indicated not only in certain types of mental diseases, but also in certain other conditions as chronic nephritis, or in cases having had repeated Cesarean sections, etc.

Sterilization may be accomplished by X-ray or by operations on the tubes, ovaries, or uterus in the female, and by operations on the testicles or vas in the male. It is of foremost importance that the physiological function of the sex mechanism be undisturbed. This can only be done by such procedures as will obstruct the passage way of the germ cells from the generative sex glands to the physiological chamber of fertilization. This seems to be

Fig. 2.—Second step in operation for excision of the cornu.

best accomplished by operations on the tubes in the female, and by resection of the vas in the male. In this way sterilization is produced permanently without altering in any other way the functions or gratifications pertaining to the sex mechanism.

According to Williams (*J. A. M. A.* Vol. 91, No. 17), our means of producing permanent sterilization of the female are restricted to

*Presented before the Clinic on Mental Diseases at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

operations on the tubes and uterus. Theoretically, tubal sterilization may be effected by one of the following procedures:

1. Simple ligation. This has proven unsuccessful.

2. Double ligation, and section between the ligatures. Statistics show that double ligation has failed in more than 18 per cent, so it seems unwise to attempt sterilization by ligation or severance of the tubes alone. Section of the tubes with peritonealization of the proximal ends seems to be successful but is difficult to do, owing to the delicate tissue involved, and it also permits infection of the proximal stump.

3. Section of the tube and burial of its proximal end between the folds of the broad ligaments or in the depths of the uterine muscle. Irving, according to Williams, buries the proximal end of the severed tube in the uterine muscle. This may prove successful but it does not remove the cornu as a possible source of infection.

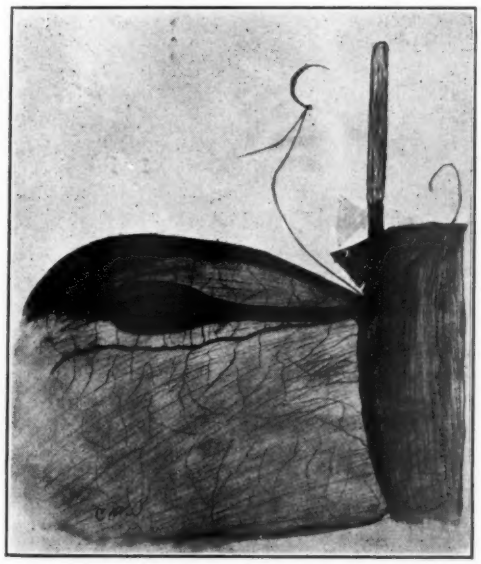

Fig. 3.—Third step in operation for excision of the cornu.

4. Excision of the entire tube, which is only indicated in the presence of pathology.

5. Excision of a wedge of the cornu and closure of the serosa. According to Dickinson (*J. A. M. A.* Vol. 92, No. 5), excision of a wedge of the cornu has failed in more than 7 per cent of the cases.

6. Various procedures, for so displacing or closing its fimbriated end so that ova cannot gain access to the tube. This seems impractical as it permits subsequent tubal inflection.

7. Separation of cornu from the uterus seems to be the most practical method. In the first few cases, I used the V-shaped incision, separating the cornu from the uterus. It soon developed that there was a tendency for the broad ligament to tear after the cornu was detached. Hematoma formed in the broad ligament as a result. Therefore, the technic was modified so as to anchor the tube, excise the cornu, eliminate hematoma, and minimize bleeding during the procedure. This makes it practically impossible for gonorrhea to later enter the abdomen and produce the usual complications. The steps in the operation are shown in the accompanying drawings. Apologies are offered for the drawings, which were made by the speaker, an artist not being available. A suprapubic incision is made which permits the removal of any pathology in the lower abdomen or faulty positions may be corrected.

Excision of Cornu

With well trained assistance, we use the most complete aseptic technic possible. A midline incision, extending about four inches

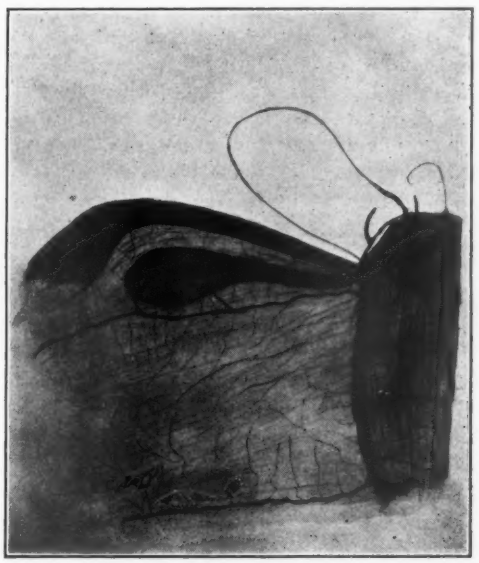

Fig. 4.—Fourth step in operation for excision of the cornu.

upward from the symphysis, is made through the skin, adipose tissue and fascia. The muscles are separated, and the posterior fascia and preperitoneal tissue are incised. Hemostasis is secured and all bleeding points are tied at this stage. The peritoneum is picked up with hemostats and opened. The uterus is now brought up in the wound and is held steady by the finger of the assistant which is placed posterior to the fundus. Retractors, gauze packs and the Trendelenburg position are rarely necessary. A curved hemostat is now placed on the tube in such a position that it clamps the whole thickness of the tube, extending across the inner angle of the broad ligament, and is anchored to the uterine muscle just above the attachments of the ovarian ligament, as is shown in Fig. 1. The tube and broad ligament is now cut mesial to the hemostat as is shown in Fig. 2. A No. 1 cat-gut suture on a small curved non-cutting needle is now placed in the uterine muscle just above the point of the hemostat, and tied, leaving the end long. This suture is continued over the hemostat until the upper surface of the tube is reached. The instrument is removed and the tube slipped on the suture, and the suture is tied to the original end, which is again left long. This anchors the tube as in Fig. 3. The cornu is now excised with a V-shaped incision and the suture continued through and through the sides of the wound until the upper angle is reached, as shown in Fig. 4. The suture is continued back down the wound and tied to the original end. It is rarely necessary to place other sutures to secure hemostasis. Both tubes are treated in like manner and the abdominal wound is closed in layers without drain.

It will be noticed from the drawings that the operation is done above the anastomosis of the uterine, with the ovarian arteries, which is just below the attachment of the ovarian ligament with the body of the uterus. In this operation, properly done, the blood supply to the adnexa is not disturbed.

The operation is comparatively simple, and usually takes only about thirty minutes to do the complete operation. Apparently this operation should be successful, except as a result of faulty technic in closing the V-shaped incision. In this event a fistula in the cornu may result.

Resection of the Vas

This operation is very simple, and is easily done with the technic we use, which was worked out in collaboration with Dr. Dejarnette. A 2 per cent mercurochrome solution, to which alcohol has been added, is used. This does not blister the scrotum. The penis is drawn over to the opposite thigh with a strip

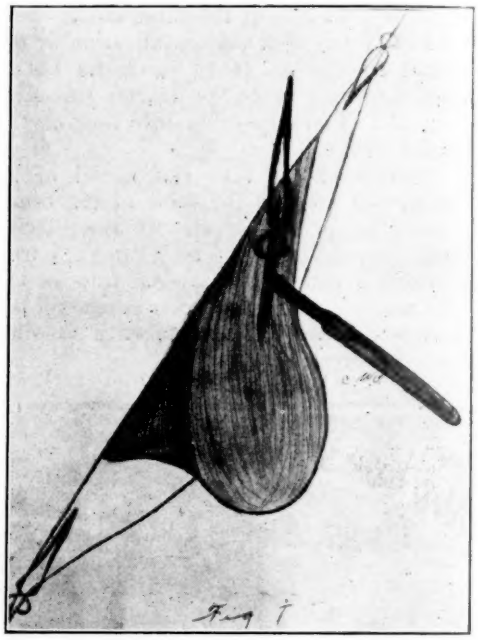

Fig. 5.—First step in operation for resection of the vas.

of adhesive, and towels are placed as shown in the diagrams. The cord is now located in the lateral aspect of the scrotum and rolled between the thumb and index finger until the hard vas can be felt as near the skin as possible. A large towel clip is then clamped in the skin behind the vas. Local anaesthesia is infiltrated into the skin over the cord. An incision, one-half to three-quarters of an inch long is made through the skin and fascia over the vas as shown in Fig. 5. All tissue is carefully dissected from the vas down to its white surface. The vas is now lifted from the wound by placing another towel clip posterior to it as shown in Fig. 6. It is then clamped and ligated in the upper and lower angles of the wound and the intervening portion is resected. The wound is closed with two or three sutures, both sides are treated in like manner,

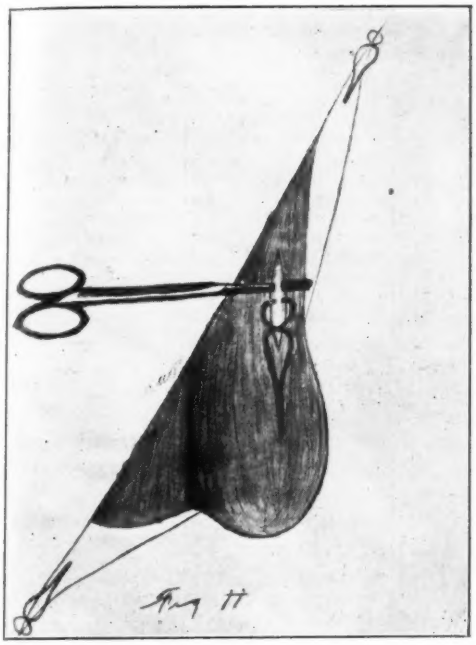

Fig. 6.—Second step in operation for resection of the vas.

and the patient is up the next day. This operation is painless, and practically bloodless as the vessels are manipulated so they become posterior to the vas, during the first manoeuvre. The cut ends retract and scar tissue forms between, rendering sterility practically certain.

Professional Building.

Correspondence

Endemic Typhus (Brill's Disease).

Richmond, Va.,
May, 1930.

Dear Doctor:

In 1929 there were reported twenty-one cases of typhus fever in which the diagnosis was verified by this department. The cases were distributed as follows:

Cities: Richmond, one; Portsmouth, one; Norfolk, one; Charlottesville, one.

Counties: Accomac, two; Brunswick, one; Caroline, one; Charlotte, two; Fairfax, two; Fauquier, three; Louisa, one; Orange, one; Richmond, one; Halifax, two; Stafford, one.

Most of these cases were quite severe. Seven of them died.

Typhus is so rare that it is easy to understand why cases are sometimes missed. The following is a brief description of the usual manifestations.

Onset—Abrupt, with chills, severe headache and prostration. Fever—Varies from 101 to 105. Rises with the chill, usually lasts for fourteen days and terminates by lysis. Eruption—Appears on the fifth day as a macular erythematous rash. In a few days the rash changes to a distinctly hemorrhagic or petechial nature and is maculo-papular in type. Respiratory—Occasionally slight cough, due to bronchitis. Cardiovascular—Pulse rapid and occasionally dicrotic, due to prolonged toxemia. Mental—Nervousness during the early part of the disease, coma during the second week in severe cases. Fatality—Most of the cases investigated in Virginia have been serious. In 1929, out of twenty-one cases, seven died. Laboratory Confirmation of Diagnosis—The agglutination reaction known as the "Weil-Felix" reaction is late in appearing and rarely present before the tenth day. It has been accepted by the United States Public Health Service as specific for typhus.

Two cases have already been reported this month: one from Portsmouth and one from Culpeper County.

Kindly report by wire, collect, all suspicious cases and state whether consultation is desired.

Ennion G. Williams,
State Health Commissioner.

Miscellaneous

Mortality Statistics for Southern States in 1928.

As a matter of interest, we publish the following tables in regard to Mortality Statistics in the Southern States. Arkansas and Georgia are omitted because they had been so recently admitted to the registration area that it is evident their statistics would be incomplete:

DEATHS
Rate Per 1,000

All Causes	
Virginia	11.7
Kentucky	11.9
United States	12.0
North Carolina	12.3
Alabama	12.3
Tennessee	12.5
Louisiana	12 8
South Carolina	13.1
Mississippi	14.4

Preventable by Public Health Activities
Rate Per 100,000

Typhoid		Dysentery and Diarrhea		Malaria		Smallpox	
United States	4.9	United States	29.7	Virginia	.5	Virginia	.1
Virginia	6.1	Louisiana	41.1	North Carolina	2.2	United States	.1
North Carolina	6.5	Virginia	41.3	Kentucky	2.2	Mississippi	.1
Alabama	9.6	Alabama	49.1	United States	3.6	Alabama	.1
Louisiana	13.4	Mississippi	52.3	Tennessee	8.5	Louisiana	.2
Mississippi	13.7	Kentucky	57 0	Alabama	11.8	Tennessee	.2
Tennessee	13.9	Tennessee	57.1	Louisiana	12.7	Kentucky	.2
Kentucky	15.9	North Carolina	59.3	South Carolina	20.1	South Carolina	.2
South Carolina	18.5	South Carolina	65.0	Mississippi	30.9	North Carolina	.6

Preventable by Public Health and Individual Activities
Rate Per 100,000

Tuberculosis		Pneumonia and Bronchitis		Diphtheria		Pellagra		Puerperal	
United States	79.2	Virginia	83.3	Virginia	7.2	United States	6.1	United States	13.7
South Carolina	81.1	South Carolina	97.4	United States	7.2	Kentucky	7.0	Kentucky	13.9
North Carolina	83.6	North Carolina	98.3	Louisiana	7.2	Virginia	7.5	Virginia	16.6
Alabama	90.6	Mississippi	102.3	Tennessee	9.2	Louisiana	16.9	Tennessee	17.8
Louisiana	92.4	Alabama	102.5	Mississippi	9 7	Tennessee	20.8	North Carolina	21.6
Virginia	96.9	United States	103.2	Alabama	9.6	Alabama	27.2	Alabama	23.3
Mississippi	105.3	Louisiana	104.5	South Carolina	10.1	North Carolina	29.0	Louisiana	24.6
Kentucky	108.3	Kentucky	104.6	Kentucky	10.5	Mississippi	42.2	South Carolina	25.2
Tennessee	134.1	Tennessee	107.8	North Carolina	12.6	South Carolina	53.0	Mississippi	25.4

Preventable by Personal Determination
Rate Per 100,000

Syphilis		Suicides		Homicides		Accidents (Auto)		Accidents (All)	
North Carolina	11.1	Mississippi	5.0	United States	8.8	Kentucky	13.4	South Carolina	58.7
Kentucky	13.1	South Carolina	5.8	Virginia	9.9	South Carolina	13 5	Virginia	65.7
United States	14.7	Alabama	6.0	North Carolina	10.4	Mississippi	14.1	North Carolina	66.7
Virginia	15.5	North Carolina	6.4	South Carolina	12.4	Alabama	14.6	Tennessee	68.0
Tennessee	15.7	Louisiana	7.9	Kentucky	17.5	Tennessee	15 3	Kentucky	73.2
South Carolina	16.1	Tennessee	8.6	Tennessee	18.5	Virginia	16.0	Louisiana	73.6
Alabama	20.1	Virginia	9.0	Louisiana	20.8	Louisiana	17.8	Alabama	74.1
Mississippi	20.6	Kentucky	10.1	Alabama	21.3	North Carolina	19.6	Mississippi	77.2
Louisiana	30.3	United States	13.6	Mississippi	25.1	United States	20.8	United States	79.2

Evidence of Advancing Years But Postponable by Periodic Examination
Rate Per 100,000

Cancer		Diabetes		Heart, Arteries and Cere. Hemo.		Nephritis	
South Carolina	42 5	South Carolina	9.3	Tennessee	215.2	Tennessee	81.2
North Carolina	51.7	North Carolina	9.5	Alabama	219.3	Alabama	92.8
Alabama	51.8	Alabama	9.9	Mississippi	221.0	United States	95.0
Mississippi	57.6	Tennessee	10.1	North Carolina	238 0	Kentucky	96.5
Tennessee	61.2	Mississippi	11.1	South Carolina	247.1	North Carolina	101.0
Virginia	65.3	Virginia	11.5	Kentucky	251.5	Virginia	111.5
Louisiana	69.5	Kentucky	12.2	Louisiana	272.0	Louisiana	114.5
Kentucky	70.1	Louisiana	12.3	Virginia	285.6	South Carolina	121.9
United States	95.9	United States	19.0	United States	316.6	Mississippi	124.5

President's Message

It is customary with all business organizations to take stock and see whether they are really giving the service that they should. Following this example, the Medical Society of Virginia is trying to take stock, for there is great doubt in regard to whether we are giving the best possible service to our membership. This stock taking will necessitate certain experiments with the old form of program, which will be placed before the membership of the society asking for criticism, as to whether the experiment is really what the members want.

Thus a great deal of criticism has been voiced in regard to the last meeting of our society at Charlottesville. This is principally due to the fact that we were unable to take care of our program, although we managed to get through by hurrying up and cutting off discussion. Our program called for a meeting on Thursday evening, which we were not able to hold at all, while the Thursday afternoon meeting was only attended by men who read papers and their special friends, whom they had asked to discuss them. This is certainly not fair to the members who have prepared papers, nor is it good for the members of the Society as a whole. Indeed, a large number of our society members seems to feel that when the entertainment is over there is little else to do, while a still larger number apparently feels that the session ends with the Report of the House of Delegates and the Election of Officers for the next year.

In order to relieve these conditions, the Program and Publication Committee has decided that it would make an attempt to do away with the last poorly attended sessions. To accomplish this, we propose to give the Report of the House of Delegates at noon on Thursday, after which the society will finish its session at an oyster roast. This will allow those who desire to leave, to do so after the Report of the House of Delegates, although it is sincerely trusted that everybody will be able to stay over to the oyster roast.

There has been further criticism that there were many papers presented which were not given sufficient thought in their preparation, and for this reason the Committee has decided: "That no paper will be accepted unless the title with a summary of one hundred and fifty to two hundred words be sent in to the Secretary on or before September 1st." At this committee meeting the President was instructed to notify the members of the society, through his Message, of this change in our plans, and to ask full cooperation of people desiring to present papers, so that we might have a thoroughly good scientific program. As there has been a great awakening of interest in Clinical Work in the State, it was decided to permit each man to present a patient or patients, illustrating the points covered by his paper, provided he does not exceed the time limit set by the By-Laws.

I trust that this change in our usual program will not make any of the members of the society feel that a paper from them is not desired, for our purpose is merely to allow a well arranged program. At the same time the Program Committee will have to take advantage of its privilege to have any paper, which cannot be well placed on the program, read by title, although they will be published in full in the Virginia Medical Monthly. While making this announcement I want to call your attention to the fact that our By-Laws specifically require that every paper read must be turned over to the Secretary of the Society for publication in the Virginia Medical Monthly. Certain men have not been complying with this in the past, and I will have to remind them that the officers of the Society have no option in this matter, and will therefore have to require that a copy of each paper be turned in at the time it is read. The Medical Monthly is being read more and more by the physicians in this State, and I feel that any man really neglects a great privilege, when he fails to have his paper thus brought to the attention of the majority of physicians practicing in Virginia.

I will again repeat that this change of program is being tried with the idea of giving the majority of the members of the Society something which they really desire. We ask for full cooperation and earnest constructive criticism, so that in the future further changes can be made which will be of real benefit to our Society.

Charles R. Grandy, M. D.,
President, Medical Society of Virginia.

Department of Clinical Education

OF THE MEDICAL SOCIETY OF VIRGINIA

Continuation Education for Practitioners.

The work of the Department of Clinical Education will cease for the summer months, when two additional Clinical meetings now scheduled have been held.

The results obtained so far have been most encouraging, and increasing interest has been shown by the profession throughout the State. The papers and lectures, accompanied by conferences and clinic demonstrations, have attracted unusual attention, and while various methods of instruction have been utilized, these combined conference clinics seem to have been most popular from an instructional standpoint. General discussion by attending physicians of the cases and clinic series, when presented, have not always been as full and free as could have been desired, but this is the only pertinent criticism that could have been made of any of the meetings. When it is realized, and statistics prove it, that a rather large proportion of practice is confined to a relatively few diseases, either in general or special practice, it is necessary that as far as possible many of these diseases should have been the topics of most of the meetings. This plan has been followed, as appealing to the largest interest of the local profession, and will be continued in the future as the policy of the Department in its cooperative efforts with the local societies. The attendance at all of the recent meetings has been most satisfactory.

With the same continuity of professional spirit, and the same equality of service, as has so far characterized the work of local member groups, the Department of Clinical Education is assured of great future usefulness, and the importance and perpetuity of its ideals of constructive educational assistance to the Society membership generally will be firmly established.

The work is for us — the benefit, for us and others. The program is not static.

Scheduled Meetings

——Only two remaining clinical meetings are scheduled for the summer.

——One will be held at Harrisonburg by the Rockingham County Medical Society, of which definite notice will be given later, and the other by request, at Richmond for the Negro physicians during the month of June.

Recent Meetings

——The Post-Graduate clinic courses given at the University of Virginia May 1-3, and at the Medical College of Virginia, May 12-15 as announced in the May issue, and in conjunction with this Department, were more largely attended than at any previous sessions.

In both series, every-day diseases scientifically discussed, were demonstrated, and most favorable opinions of the value of this continuity of subject and its clinical exposition have been received.

The University Faculty discussed mainly allied medical conditions, and the Faculty of the Medical College of Virginia, together with several invited guest clinicians from West Virginia, North Carolina, and other cities in Virginia, emphasized surgery with special reference to the general practitioner.

The lists of attending practitioners at each of these clinics will be found elsewhere in this issue.

Preface to Report

As will be recalled, the Extension Department of the University of Virginia aided the Medical Society of Virginia in its work of initiating Graduate Medical training by making a survey and report of similar efforts by other medical societies and state agencies.

The authors of this valuable work, to whom we are greatly indebted as a society, have requested this Department, in order that the Society's pioneer efforts in this educational field may be properly recorded, to write the "Introduction" to the pamphlet containing the report which is to be issued soon, and it accordingly is as follows:

Introductory to Report on Continuation Education for Practitioners

Many problems are concerned with professional practice. The Science of Medicine has always been evolutionary and progressive, and to keep in touch with its advances, every practitioner must study continually its trend and developments.

Medical Education and its clinical application to disease are, of necessity, closely related, but it must be evident to every thinking student of applied medicine that to date, many colleges teaching the Science and Art of Medicine, although their basic training may have

been excellent, have yet failed to fit their graduates to bridge successfully the medical sciences into their proper clinical application.

In other words, while many graduates may be technically skilled in some, or many of the branches of the medical sciences, yet the curricula which they have mastered have not visualized the total objectives of the basic training in relation to the various problems and existing conditions that are to be met in actual practice.

Hence, closer allied with the scientific training, must be the common-sense correlation of other present and practical subjects with which the prospective graduate must be thoroughly familiarized, if, in this new day of medical progress, he is to realize the fullest usefulness of the profession; for, today, he must know not only the best methods of diagnosis and treatment of disease, especially in its incipiency, but also the prevention of illness and the importance of advisory health work, not to mention the relationships and contributions which future medicine can make to many phases of national life, such as to industry, human behavior, and social welfare.

Fortunately for the physician of the future, there will soon be less stress upon courses and credits in medical college training, and more upon knowledge and upon the individual student, in order that he may the better meet local and personal needs practically, and scientifically adjust them to existing environment.

The failure of many practitioners to have had such advantages, or later, from circumstance, to have been denied the benefits of professional contacts, renders the duty of this Society all the more obligatory, in order that it may bridge this lack of special training into terms of actual service to its members, as well as keep them abreast with the approved advances of modern scientific medicine and its application to the needs of the individual, and the community.

To improve such conditions, many methods recently have been devised and variously applied.

Now, many medical schools are seeking to develop in their students sound habits, as well as methods, of study which will equip them with a sufficient fundamenal training to continue their self-education, and take advantage of the future developments in medical science and practice.

Among the states working on this problem have been notably Missouri, Nebraska, North Carolina, Wisconsin, Connecticut and others; among University Medical schools, Pennsylvania, Harvard and others; and among Post-Graduate institutions, the New York Medical Schools and the Mayo Clinic.

In this report, references and conclusions as to the methods adopted and results obtained from these and other sources will be found summarized and tabulated.

In addition to the regularly organized Post-Graduate Courses offered by some of the Universities, a limited number of medical societies and state health departments have endeavored, also, to formulate programs for Extension Graduate Courses, which would obviate the necessity of the practitioner leaving his work.

The Medical Society of Virginia, realizing such a necessity, has been much interested during the past three years in solving this problem.

In 1927, Dr. J. Shelton Horsley, in his presidential address at Petersburg, officially suggested the importance of some method of Graduate Medical training and, during his term of office as president, Dr. J. W. Preston was impressed, from observation, that after graduation the average practitioner of the State is left to his own limited resources in so far as his school of graduation is concerned, and that those most closely confined by their work, and who are most in need of help, have heretofore been given the least assistance by their medical colleges, or our medical organization, and he believed that the development of some workable plan to meet the situation should become the major objective of the Society. As Chairman of a special Committee on Post-Graduate Study, instituted during his administration, he enlisted the assistance and cooperation of the Extension Department of the University of Virginia, Mr. George B. Zehmer, Director, and Mr. George W. Eutsler, Associate Director. Their work covering a study of several months into the general and special local conditions prevailing in all of the different states which had either developed a system, or were endeavoring to effect some method applicable to their necessities, is herewith submitted, as edited by Dr. Preston, and has been in general the basis of

the plan undertaken by the Medical Society of Virginia.

This work of the Extension Department, in collecting and collating the facts, has been so comprehensive in its scope, and so detailed in its study and application, that it speaks for itself, and will be educative to every interested reader.

In pursuance of these efforts to provide Continuation Education Courses for its members, the Medical Society of Virginia at its Charlottesville meeting in October, 1929, was presented with a report from Dr. J. Allison Hodges, Chairman of the Committee on Medical Education and Hospitals, outlining a plan for Continuation Education for Practitioners. This report, with the concurrence of the Committee on Post-Graduate Study, was unanimously adopted in all its details by the House of Delegates.

The plan proposed, briefly stated, provides for the election annually of seven members of the Society, who shall compose the Department of Clinical Education, as follows: three of the members to be chosen from the Society membership at large (one of them, the President-Elect for the year, to be Chairman), one representative from each of the two Medical Colleges in the State, one representative from the State Department of Health, and an Executive Secretary, who may be either a physician, or a layman.

The dominant idea of this Department is that it shall be the central medium between the Society and its constituent county units, and shall act as a supply and exchange station for information and correlation of the work for Continuation Education to its members, by assisting the local societies in securing additional lecturers and clinicians, and otherwise cooperating as requested; the component Medical Societies being the vitalizing factors, the ten Councilors of the Society being the Advisors, and the State Medical Society the Sponsor and connecting link between these units, through this Department, aided by an Advisory Board composed of members of the Society's Standing Committees on Medical Education and Hospitals, and Scientific Work and Clinics.

At a meeting held on December 4, 1929, in Richmond, the work of the Department of Clinical Education was officially put in operation, and is summarized in

The Following Plan:

1. Major Basic Features:

a. To carry to the practitioner in his own community, through the Department of Clinical Education, the progress and recent advances in Medicine and Surgery by means of Diagnostic Clinics, Conferences, Clinical Reviews, etc., in certain localities and hospitals, mutually selected;

b. To aid in the establishment ultimately of fully organized Post-Graduate Educational and Clinical courses by the Medical Colleges of the State; and

c. To encourage and assist the State Society and its Journal.

2. Minor Collaborative Features:

a. Hospital and Laboratory exhibits and privileges extended by the District and City Hospitals on certain days to doctors in their immediate vicinities, regularly scheduled each week, and published monthly in advance in the Society Journal;

b. Journal Clubs, and Correspondence Education Courses, published at intervals in the Society Journal, on subjects requested by members;

c. Later on, radio addresses on Medical and Surgical progress to doctors, and to the public occasionally, by doctors at different radio broadcasting stations throughout the State;

d. An interchange of Clinicians from one District, or city, or college to another, as occasion offers;

e. Ultimately, these advantages and privileges to be given to the Negro physicians of the State, if desired, as far as practicable;

f. Other methods of instruction and of practical Clinical Education to be used, as opportunity affords, to meet existing needs in special localities without professional contacts, and

g. These features to be instituted gradually according to agreement between the local societies and the Department.

The foregoing schedule as outlined, and now in practical operation, is proving to be of constructive benefit in the sections where it has been applied, and it is believed that it is the best available, especially in view of our limited financial resources, and it is hoped that it will be of increasing usefulness in Graduate Medical training, for this is now becoming of great

importance in the general scheme of professional education and medical service.

The Report of the Commission on Medical Education, Dr. Rappleye, Director of Study, says that with the enormous increase in knowledge, the ever widening responsibilities of medicine, and the continuous development of technical methods and accessories for early diagnosis and treatment of disease, it is quite evident that the education of the physician can never end, for the gap between our knowledge and its application is not lessening, and must be constantly bridged at the speed at which new developments in Medicine are being made. This can be done only by keeping abreast of new knowledge, and it is urgently necessary that practicing physicians in our State be helpfully stimulated and educated, so as to keep in step with approved modern advances.

To aid in the solution of this scientific and humanitarian problem, to assist in rendering more useful the profession of Medicine and its practice by lifting the doctor out of the rut of dull routine into the field of newer practice, and finally in behalf of better education for physicians and longer life resultantly for the people, this report is herewith published and presented with the compliments and best wishes of the Extension Department of the University of Virginia to the members of the Medical Society of Virginia.

Information

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Va., or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Va.

Proceedings of Societies

Joint Meeting of Committees on Publication and Program and on Scientific Work and Clinics of the Medical Society of Virginia.

A joint meeting of these committees was held in the Society's offices, Richmond, on the afternoon of April 25th, with Dr. A. G. Brown, Jr., chairman of the Committee on Publication and Program, presiding. Those present were: Drs. Brown, J. H. Neff and Walter B. Martin, of the Publication and Program Committee; Dr. J. Edwin Wood, Jr., chairmain of the Scientific Work and Clinics Committee; Dr. Charles R. Grandy, president, Dr. J. Allison Hodges, president-elect, and Miss Agnes Edwards, secretary.

Dr. Brown stated that this meeting had been called for the purpose of discussing plans for the program of the Norfolk meeting of the State Society and he wished a free discussion of the subject with a view to adding to the interest of the meetings.

After a free discussion, it was decided that, in view of the criticism of an over-crowded program at previous meetings, it seemed necessary for the next meeting to adopt the following plan:

1. That at the next meeting the report of the House of Delegates be made at noon on Thursday, October 23, after which the meeting shall adjourn finally to an oyster roast;

2. That the clinics to be given on Tuesday afternoon, October 21, be divided into three (3) groups, conducted simultaneously, at different locations, and that notice of the place and time of the clinics be published in the MONTHLY in advance for the information of members;

3. That notices be sent to members, inviting them to submit titles of "voluntary" papers to be placed on the program, but that no paper be accepted unless the title, with an abstract of the paper of 150 to 200 words, be sent to the Secretary by September 1;

4. That if the number of titles, with abstracts submitted, be in excess of the number necessary to make up a program, such additional titles of papers appear in the program to be read by title.

The above motions were duly made and seconded and were adopted unanimously.

Note. It will be the policy of the President to permit a member to present a patient or patients illustrating the points covered by the subject of his paper, provided the member does not exceed his time limit of fifteen minutes in so doing.

The subject of "Syphilis" was selected for the symposium for the Norfolk meeting, this to be subdivided into at least four aspects. Dr. J. H. Neff, of the University of Virginia,

was appointed to handle this feature of the program and to arrange for the presentation of the subject.

There being no further business, the meeting adjourned.

AGNES V. EDWARDS, *Secretary.*

Norfolk County Medical Society.

The session of the Norfolk County Medical Society on Monday, May 19th, was of an unusual type and was thoroughly enjoyed by the large number of the membership present. Turning aside for once from the accustomed consideration of questions of diagnosis and treatment, the evening was given to medical history as developed in the lives of a considerable number of men whose names stand out with distinction in the long line of scientists who have led the profession in its advance toward the goal of scientific attainment which ever seems nearer and yet full attainment is deferred.

Dr. Frank Hancock, historian of the Society, and orator *par excellence*, delivered the chief address of the evening, entitled, "Pictures of Eminent Medical Men of the Past." Photographs of most of those mentioned were thrown on the screen giving a more lifelike tone to the biographical and professional descriptions of these trail blazers to whom we owe so much.

Dr. Hancock dispensed with manuscript and as one listened to the rapid fire sketches of these various characters there came to mind Goldsmith's comment on the village Schoolmaster of his "Deserted Village,"

"And still the wonder grew how one small head could carry all he knew."

Following Dr. Hancock, a couple of portraits of the late Dr. John Peter Mettauer, pioneer physician of Virginia, were shown by Dr. W. L. Harris, who briefly reviewed his life and work.

Captain R. C. Holcomb, Commandant of the U. S. Naval Hospital, at Norfolk, gave some interesting data relative to a number of Norfolk's own men of eminence in the professional life of the last century, as brought to light by his researches in connection with his forthcoming book on "A Century of the Norfolk Naval Hospital." The Society deeply regrets that the Navy regulations call for the early departure of Dr. Holcomb from this station where he has won for himself a high place in the regard of the medical and dental professions with which his position has brought him in contact. His genial presence and ever readiness to serve will long be remembered in Norfolk and Portsmouth.

LOCKBURN B. SCOTT, *Secretary.*

The Clinch Valley Medical Society

Held its regular meeting at the Mattie Williams Hospital, Richlands, Va., April 26th, under the presidency of Dr. Joseph E. Wolfe, Coeburn, Va. The secretary, Dr. C. B. Bowyer, Stonega, had assisted greatly in working up an interesting meeting. There was an attendance of forty-two of the fifty-six members of the Society. Clinics and lectures were given by Drs. Stuart McGuire and E. G. Williams, of Richmond, and Drs. J. C. Flippin and L. T. Royster, of the University of Virginia. Dr. Charles R. Grandy, Norfolk, President of the State Society, also made an interesting and inspiring talk before the meeting. This meeting was thoroughly enjoyed and the members were unanimous in requesting a similar program for their next meeting which will be held at Norton, Va., in September. Dr. J. M. Daugherty, Nickelsville, and S. C. Couch, Cleveland, are vice-presidents of this society.

The Piedmont Medical Society

Held its Spring meeting at Madison, Va., on the afternoon of May 16th, under the presidency of Dr. Lewis Holladay, of Orange. Dr. Bayard Carter, University, Va., presented a paper on "Toxemias of Pregnancy" and Dr. W. W. Waddell, also of University, read one on "Gastro-Intestinal Disturbances of Children," both of which brought forth considerable discussion. At the business meeting, Dr. J. N. Clore, of Madison, was elected president for the coming year, Dr. J. N. Barney, Fredericksburg, vice-president, and Dr. W. E. Bray, University, was re-elected secretary-treasurer. Following the meeting, supper was served at the Hunton Inn, after which a few after-dinner speeches were made and everyone seemed to have a good time. The next meeting is to be held in November.

The Virginia Society of Otolaryngology and Ophthalmology

Held its annual meeting on Saturday, May 3rd, at the Patrick Henry Hotel, Roanoke, Va., under the presidency of Dr. H. B. Stone, Roanoke. At this meeting, the secretary was instructed to send a telegram wishing a speedy recovery to Dr. Joseph A. White, of Richmond, who was unable to attend the meeting because of illness. Fifty dollars was voted by

the Society to the Walter Reed Memorial Commission, as a further donation to this cause. Dr. George W. Botts, Norton, and Dr. J. M. Holloway, Fredericksburg, were elected to membership in the Society. Following the presentation of several interesting papers, the following officers were elected: President, Dr. Fletcher D. Woodward, Charlottesville (retiring secretary); vice-president, Dr. Charles A. Young, Roanoke; secretary-treasurer, Dr. H. Grant Preston, Harrisonburg. Dr. H. B. Stone replaced Dr. C. M. Miller on the executive council. Richmond was selected for the 1931 place of meeting.

The University of Virginia Medical Society.

The March meeting of the University of Virginia Medical Society was held in the University of Virginia Amphitheatre. Dr. P. D. White, of Boston, addressed the Society, giving a most interesting and instructive resume of his experiences in the European Cardiac Clinics.

On the 21st of April the University of Virginia Medical Society had two interesting papers. Dr. James Kindred, of the Department of Histology, reviewed an experimental work that he has been carrying on, the title being "Cytologic Changes in the Kidney of a White Albino Rat Following Elongation of the Main Blood Vessel." The histology of these kidneys was described, sections having been taken up until ten weeks following operation.

Dr. Staige Blackford reviewed 100 cases of primary pneumonias which have occurred in the University of Virginia Hospital. This review will probably appear soon in the "Virginia Medical Monthly."

J. B. Graham, M. D., *Secretary.*

Woman's Auxiliary, to the Medical Society of Va.

Richmond Auxiliary Active.

On May 7th, the Auxiliary to the Richmond Academy of Medicine held a card party in the ballroom of the Mosque for the benefit of the children's wards of the Dooley and St. Philips hospitals. The result was very gratifying as a nice sum of money was realized for carrying on this important piece of child welfare work. Mrs. W. Armistead Gills was general chairman of the party.

Another activity of the Auxiliary was helping in the Early Diagnosis Clinic for children, conducted by the Richmond Tuberculosis Association, May 12th-16th. The Clinic had an average daily attendance of sixty-five children, and the Auxiliary furnished about five of its members each day for the purpose of taking case histories and acting as a motor corps, taking the children to and from the Clinic.

Under the splendid leadership of Mrs. Charles Phillips, the *Hygeia* Committee is actively engaged in putting *Hygeia* in libraries, physicians' and dentists' offices and in the public schools.

The officers of the Woman's Auxiliary to the Richmond Academy of Medicine are: Mrs. N. Thomas Ennett, President; Mrs. W. Armistead Gills, Vice-President; Mrs. W. S. Beazley, Jr., Secretary; and Mrs. J. W. Hannabass, Treasurer.

Study Programs for County Auxiliaries.

In our May issue, page 121, we explained the Study Programs for County Auxiliaries which have been prepared for the Woman's Auxiliary to the American Medical Association. These programs especially considered Common Defects in Children. Last month, the subjects discussed were "*Underweight and Malnutrition*" and "*Ears.*" The following is a continuation of the subject with a discussion of other defects.

(*Continued from page* 122)

Nose and Throat

Physicians are Recognizing More and More That Affections of the Upper Respiratory Tract in Children are Responsible for Many of the Cases of Malnutrition, Failure to Grow, and Even for Such Serious Disorders as Tuberculosis and Rheumatism.

The recognition of this fact is growing more and more important since more people are coming to live in congested districts with the ever-increasing amount of dust and dirt and smoke in the air. The increase in tonsillitis with the necessity of removing the tonsils, is largely due to this change in living conditions. Even hay fever and asthma are increasing because of the breathing in of irritant pollens and dust.

On the other hand, weak children rendered weak either by heredity or by improper feeding, or by acute disease, are more liable to

these infections and irritations than are strong and vigorous children. Therefore any campaign to improve the general health must look to the improvement of the condition of the nose and throat, as well as to the securing of good food, proper exercise and proper hours of sleeping.

Adenoids which obstruct the breathing and interfere with the circulation of the brain, thus making dullards of children who would otherwise be normal, are largely due to this breathing of air charged with dust and dirt and germs. The tonsils become diseased usually only after they have been filled up with such foreign material and thus rendered unfit to continue their work of moistening the inspired air. The cartilages of the nose become hypertrophied and bent because of this long continued irritation. Therefore, parents who exclaim against the modern tendency to cut out tonsils and adenoids and to correct nasal deformities should realize that it is because their children have been long exposed to bad air without taking measures to cleanse the air passages that such surgical work has become necessary.

The school physician finds relatively few normal noses and throats and he has learned that when he finds swollen glands, diseased chests and even some cases of protruding abdomen, he can secure almost miraculous cures by having the surgeon remove the diseased adenoids and tonsils. Similarly most cases of deafness in children are due to the extension of the inflammation starting in the nose and reaching backward into the eustachian tubes which lead to the ears. These tubes often become practically blocked. So, also, in running ears and earache, the first step to take is usually to cleanse the nasal passages of excessive adenoid tissue and to remove the tonsils.

The school physician realizes that it is hopeless to expect a cure of beginning tuberculosis, if the tonsils and adenoids are not cleaned up. The part played by Infections of the Nose, Sinuses and Throat has been recognized by authorities on Diseases of the Heart. Heart Disease in children is frequently due to rheumatism, and the rheumatism of childhood is frequently due to such infections.

Eyes

Tests made upon thousands of children of all ages in the United States have demonstrated that, of the 24,000,000 children in the elementary and secondary schools of the United States, an enormous percentage has defective eyesight.

Many of these are so handicapped by their defective vision that normal, mental development is impossible and comfort and health suffers.

It has been proven over and over again that many cases of backwardness, and what has seemed like stupidity and laziness in growing children have been due entirely to poor eyesight or to poor hearing.

Teeth

Teeth have an important task to perform for the body, and unless they are kept in condition to perform that task, the health will suffer. Good digestion depends upon well-chewed food. Chewing is easy when the teeth are sound, or at least in good repair. But when they are decayed and sore, thorough chewing being painful is avoided, and digestion is interfered with.

Further, if the decayed spots are neglected, the pulps or nerves of the teeth may become infected and abscesses at the base of the roots may develop.

Teeth infected in this way may cause very serious troubles, the effects of which may last through the entire life.

We hear much these days about focal infections. Generally speaking a focal infection is a pocket of pus in some hidden part of the body whose only drainage is into the blood stream. (In many instances infected teeth or infected tissues around teeth do not necessarily have distinct collections of pus. Indeed there are certain pathogenic organisms producing infection that are not pus forming.) The constant seepage of this infective material into the blood stream usually destroys the body's normal resistance to disease germs, and may proceed so far as to produce an anemia and a general weakening of the body tissues.

If the organisms of this pus happen to be of a virulent sort they may invade the heart muscles, and produce heart disease; they may invade the joints and produce rheumatism, or they may even proceed so far as to produce a general septicemia or blood poisoning.

Sound teeth are, therefore, one of the child's precious possessions. The mother whose health is good and who eats the right sort of food before the child is born, usually endows the child with sound teeth to start life with.

This is the first and perhaps the most important step.

Not only before birth does food influence the structure of teeth, but after birth as well. Therefore bottle-fed babies must be given food containing the lime salts and vitamins in order to produce teeth of the proper size and density. Of course, the breast-fed baby gets the vitamins from the mother. If, therefore, the mother is healthy and eats a properly balanced diet, the baby teeth get a good start.

The next important step is the care of the first teeth.

The first teeth need as much care as the second set. If any of the first teeth are lost, the jaws do not develop normally and the second teeth are likely to be irregularly placed, and are, as a result more subject to decay. They are just as likely to become infected as the second set are. THEREFORE, DENTAL ATTENTION TO CAVITIES IS AS IMPORTANT WITH THE FIRST AS WITH THE SECOND TEETH.

And when permanent teeth are developed, parents should remember that the care given them will have an influence upon the health of the child to the last day of his life.

And last of all, just as the teeth influence the general health, so the general health affects the teeth. Decay of the teeth is not purely a local process to be avoided entirely by careful cleaning two or three times a day, but is itself influenced by the general bodily condition. The child should be taught the value to himself of good teeth and that to have them he must, in his youth, by proper food, sufficient sleep and the right kind of exercise, build up and develop vigor and good general health.

(*To be continued*)

The Truth About Medicine

In addition to the articles enumerated in our letter of March 28, the following have been accepted:

Mead Johnson & Co.
Mead's Dextri-Maltose with Vitamin B.
Parke, Davis & Co.
Ampoules of Pitocin 0.5 c.c.

NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxin-Antitoxin Mixture 0.1 L + Non-sensitizing (Sheep).—A diphtheria toxin-antitoxin mixture (New and Non-official Remedies, 1929, p. 360), each c.c. of which constitutes a single dose of diphtheria toxin neutralized with the proper amount of antitoxin produced from sheep. It is marketed in packages of three vials, each containing 1 c.c.; in packages of one vial containing 10 c.c.; in packages of one vial containing 30 c.c.; and in packages of thirty vials, each containing 1 c.c., United States Standard Products Co, Woodworth, Wis.

Tablets Tutocain No. 6.—Each tablet contains tutocain (New and Non-official Remedies, 1929, p. 51), 0.05 Gm. Winthrop Chemical Co., Inc., New York.

Ampoules of Pitocin 0.5 c.c.—Each ampule contains more than 0.5 c.c. of pitocin solution (Jour. A. M. A., July 13, 1929, p. 117). Parke, Davis & Co., Detroit.

Merthiolate Jelly 1:2,000.—It contains merthiolate (Jour. A. M. A., December 7, 1929, p. 1809), 0.05 per cent, eucalyptol 0.016 per cent, eugenol 0.016 per cent in a water-soluble base. Eli Lilly & Co., Indianapolis.

Merthiolate Ointment 1:1,000.—It contains merthiolate (Jour. A. M. A., December 7, 1929, p. 1809), 0.1 per cent in a petrolatum base. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., April 19, 1930, p. 1237).

FOODS

The following products have been accepted as conforming to the rules of the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association:

Klim Powdered Whole Milk (Merrell-Soule Co.) It is whole milk from which all but about 2 per cent or less of the normal water has been removed by means of the spraying process of drying milk. It contains: fat, 28.0 per cent; protein, 26.7 per cent; lactose, 38.0 per cent; ash, 5.8 per cent; water, 1.5 per cent. Klim milk is used for supplementary feeding to be used according to a physician's formula.

Borden's Natural Flavor Malted Milk (The Borden Co., New York). It is a processed mixture of barley malt, wheat flour and whole milk, reduced to powdered form. The product contains: fat, 9.2 per cent; protein, 15.5 per cent; lactose, 13.5 per cent; maltose, 35.6 per cent; dextrin, 20.2 per cent; ash, 3.8 per cent; moisture, 2.2 per cent. It is easily digested.

Mellin's Food (Mellin's Food Co., Boston). It is a milk modifier. It contains: fat, 0.16; protein, 10:35; maltose, 58.88; dextrins, 20.69; soluble carbohydrates, 79.57; salts, 4.30; water, 5.62. Mellin's Food is a soluble, easily digestible dry extract, made from wheat flour, wheat bran, malted barley and potassium bicarbonate.

Mellin's Food Biscuits (Mellin's Food Co., Boston). They contain a large percentage of Mellin's Food. (Jour. A. M. A., April 12, 1930, p. 1145).

PROPAGANDA FOR REFORM.

Action of Phenolphthalein.—One should always think of the possibility of a phenolphthalein eruption when studying the etiology of a puzzling exanthem. As phenolphthalein is chiefly excreted into the intestine by means of the bile, and reabsorbed from the colon, there is a tendency for its action to continue for several days. Hence, its continued daily use may lead to ultimate overaction with diarrhea, abdominal pains, tenesmus and bleeding. (Jour. A. M. A., April 12, 1930, p. 1165).

Undulant Fever Bacterial Vaccine.—The Council on Pharmacy and Chemistry reports that the Jensen-Salsbery Laboratories, Inc., have presented Undulant Fever Bacterial Vaccine (Jensen-Salsbery) for consideration by the Council. This product is stated to be a physiologic saline suspension of *Brucella melitensis* (var. *abortus* 75 per cent, and *suis* 25 per cent). From an examination of the published reports the Council's referee came to the conclusion that this material does not offer adequate evidence for the usefulness of the product and that this form of treatment should be subjected to further con-

trolled clinical trial. The Council voted to publish its preliminary report and to postpone definite action on the question of accepting Undulant Fever Bacterial Vaccine (Jensen-Salsbery) while awaiting the development of further evidence of its therapeutic value. (Jour. A. M. A., April 26, 1930, p. 1304).

The Cutaneous Absorption of Mercury.—It requires little imagination to appreciate the uncertainties that must attend the problem of dosage when such a relatively insoluble substance as mercury is applied to the skin. The size of the particles, the nature of the adjuvant, the place of application and its conditions, and the vigor with which inunction is practiced are some of the complicating features. The assumption that only the mercury globules rubbed into the follicles are gradually absorbed had led to the clean inunction method proposed by Cole and his collaborators. Some indication of the efficacy of inunction procedures can be secured by estimation of the substance that is eliminated. This has been done and it was found that the amount of mercury which is absorbed and excreted after inunction is dependent directly on the concentration of the metal in the base—that is, 5, 25 and 50 per cent preparations show that the excretion is about in proportion to the concentration in the ointment used. Again, contrary to what many have assumed, colloidal mercury ointments showed no greater excretion of mercury than official old-fashioned mercury ointments of equal concentration in benzoinated lard. Furthermore, massive or intensive weekly inunctions of a 30 per cent mercurial ointment may lead to an equal or higher mercury excretion than the simple daily use of 50 per cent ointment or even certain types of intramuscular injection. (Jour. A. M. A., April 26, 1930, p. 1322).

Book Announcements

Normal Facts in Diagnosis. By M. COLEMAN HARRIS, M. D., Lecturer on Physical Diagnosis, New York Homeopathic Medical College and Flower Hospital; Assistant Visiting Physician, Flower Hospital, etc. And BENJAMIN FINESILVER, M. D., Lecturer on Diseases of the Nervous System, New York Homeopathic Medical College and Flower Hospital; Assistant Visiting Physician, Flower Hospital, etc., Philadelphia. F. A. Davis Company. 1930. Octavo of 247 pages. Illustrated with forty-two engravings, some in colors. Cloth. Price, $2.50 net.

Uterine Tumors. By CHARLES C. NORRIS, M. D., Professor of Gynecology and Obstetrics and Director of the Department, University of Pennsylvania; Gynecologist and Obstetrician, Radiologic Department of the Philadelphia General Hospital; Gynecologist, Children's Hospital, Philadelphia, etc. Harper's Medical Monographs. Harper & Brothers. New York and London. 1930. 12 mo. of 251 pages. Illustrated. Leatherette. Price, $3.00.

Merck's Index. Fourth Edition. **An Encyclopedia for the Chemist, Pharmist and Physician.** Giving Names and Synonyms; Source, Origin, or Mode of Manufacture; Chemical Formulas and Molecular Weights; Physical Characteristics; Melting and Boiling Points; Solubilities; Specific Gravities; Medicinal Action; Therapeutic Uses; Ordinary and Maximum Doses; Incompatibilities; Antidotes; Special Cautions; Hints on Keeping and Handling, etc., of the **Chemicals and Drugs Used in Chemistry, Medicine and the Arts.** Together with an APPENDIX containing: Reactions of the More Important Alkaloids and Glucosides; Characteristic Reactions of Acids, Bases, Metals, and Salts; Table of Atomic Weights; Thermometric Equivalents; Specific Gravity Tables; Metric Conversion Tables; and Abbreviations. Merck & Co., Inc. Rahway, N. J. 1930. Octavo of 585 pages. Leatherette. Regular subscription price $5.00, with a discount of 50% ($2.50) to members of and those affiliated with the medical, chemical, pharmaceutical and allied professions.

Aesculapius. A One-Act Play. By BARBARA RING. Boston. Walter H. Baker Company. 1930. Pamphlet of 40 pages. Professional rates quoted upon application.

Clinical Features of Heart Disease. An Interpretation of the Mechanics of Diagnosis for Practitioners. By LEROY CRUMMER, M. D., Emeritus Professor of Medicine, University of Nebraska. Introduction by EMANUEL LIBMAN, M. D., Professor of Clinical Medicine, Columbia University. Second Edition, Revised and Enlarged. Paul B. Hoeber, Inc. New York. 1930. Octavo of 415-xv pages. Cloth. Price, $4.00.

Minor Surgery. By ARTHUR E. HERTZLER, M. D., Chief Surgeon, Halstead Hospital, and VICTOR E. CHESKY, M. D., Chief Resident Surgeon, Halstead Hospital. Second Edition. St. Louis. The C. V. Mosby Company. 1930. Octavo of 602 pages. With 475 Illustrations. Cloth. Price, $10.00.

Infant Nutrition. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By WILLIAMS McKIM MARRIOTT, B. S., M. D., Professor of Pediatrics, Washington University School of Medicine; Physician in Chief, St. Louis Children's Hospital. St. Louis. The C. V. Mosby Company. 1930. Octavo 375 pages. Illustrated. Cloth. Price, $5.50.

Certified Milk Conferences. Held in 1929. Annual Conference American Association of Medical Milk Commissions, Inc., and Certified Milk Producers' Association of America, Inc. Montreal, Canada, June 24-25, 1929. Annual Conference Metropolitan Certified Milk Producers, Inc., with the Certified Milk Producers' Association of America, Inc. New York, February 4, 1929. Constitution and By-Laws of the American Association of Medical Milk Commissions, Inc. Constitution and By-Laws of the Metropolitan Certified Milk Producers, Inc. Methods and Standards for the Production of Certified Milk. Octavo of 350 pages. Cloth.

Hospital Service in the United States. 1930. Ninth Presentation of Hospital Statistics by the Council on Medical Education and Hospitals of the American Medical Association. HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION. Reprinted from the Hospital Number of the *Journal of the American Medical Association*, March 29, 1930. Paper. 100 pages. Price, 50 cents.

Medical Education and Related Problems in Europe. By the COMMISSION ON MEDICAL EDUCATION. April, 1930. WILLARD C. RAPPLEYE, M. D., Director of Study. 215 Whitney Avenue, New Haven, Conn. Paper. 200 pages.

Methods and Problems of Medical Education. (Sixteenth Series). The Rockefeller Foundation. 61 Broadway, New York, N. Y. 1930. Paper. 251 pages.

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Editorial

Injection Treatment of Varicose Veins.

Varicose veins of the lower extremities give great discomfort. The incidence of the condition is widespread especially among working people; not only among this type but also in persons who have suffered injury to the veins in previous illness, such as complications of childbirth or infections. The term "varicose veins" is accepted by general use to apply to veins of the extremities, involving the internal saphenous. In this process, there is dilatation of the vein altering the endothelial lining and shortening or obliterating the valves, the outer coat becoming thickened. The process involves, cheifly, the superficial veins and creates an enlargement of the limb with more or less chronic discomfort and semi-invalidism. The patients suffer more or less constant discomfort and pain. They are conscious of a sense of weight and heaviness in the feet and legs. They may become victims of ulceration and hemorrhages. The use of bandages, elevation and elastic stockings of all sorts and styles have been resorted to in order to secure some relief from these nagging discomforts. Operations for removal of varicose veins have been generally adopted as the most complete and surest method of cure. Surgical treatment of the condition has tended to retard a general application of curative procedure to this affliction of mankind. Surgical treatment, however, it must be stated, remains in certain types of cases, as yet, the surest and most complete method of attacking the problem. But within the past few years, the so-called medical injection treatment of varicose veins has come into popular favor with the profession. The practice has become so general that advocates of the treatment by injection are reporting series of cases in meetings; and pharmaceutical houses are "detailing" special preparations to be used in the office treatment.

It is interesting to note from a brief review of the literature that injection treatment, as now so widely adopted, had its inception from a treatment instituted by Pravaz in 1851, when he invented his syringe for use of treatment of aneurysm by the injection of ferric chloride. From that time to the present, in Europe, injection treatment of varicose veins became more and more used. Various methods have been used but a real step was made in 1911 when Professor Linser, of Tübingen, Germany, discovered that following the administration of mercuric chloride in the treatment of syphilis, veins became obliterated. He then adopted this method of direct obliteration of varicose veins and continued the method until 1923, when he sought a better and safer method by using 20 per cent of sodium chloride solution. Following this, or more or less coincident with it, Sicard, of Paris, used sodium salicylate. Genevrier used quinine dehydrochloride and urethane, and Kausch used invert sugar solution. This latter agent was adopted and proclaimed for favorable use by Professor Nobl. It is significant that in Europe, 48,000 cases have been treated during this period by this injection method; it has become more recently popular in this country as is shown by its adoption by Hayes, McPheeters, Bratrud, de Takats, Schussler, and Kilbourne and Logefeil, who have reported large series of cases.

Logefeil notes that in a survey of 4,607 operative cases, Kilbourne finds 1 death in each 250, while in 53,000 cases treated by injection, only 11 fatalities occurred and to these Kilbourne added two. This makes it worth while, in commenting on the adoption of this plan of treating varicose veins, to express a note of caution. There are some dangers and complications. A fatality from the use of a remedy which is given for relief of a disabling condition only is even more to be avoided than one following a life-saving effort. Physicians may receive the reports of the efficiency of this method with enthusiasm but it must be remembered that extreme care should be exer-

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cised, particularly by those with limited experience in the technic. Pitfalls and complications may disappoint one in the results if no more serious result is met. Cases should be selected. Solution employed should be limited to one well accepted and recognized sclerosing-solution. Patients with diabetes, nephritis, and arteriosclerosis should not be treated by this method. Pregnant women should not receive the treatment. There were only seven deaths in about 53,000 cases treated, states McPheeters and Rice, making a low mortality of 0.0024 per cent. But, never-the-less, complications such as a pulmonary embolus may terminate the treatment in death. This occurred in four of the above collected cases; yet it is safe to say that this treatment has passed the experimental stage and may be placed in the category of rational treatment of varicose veins.

In the action of sclerosing drugs employed lies the secret of freedom from risk of emboli. A fibrotic clot is formed in veins injected. Irritating action of the sclerosis solution causes destruction of the intima. This is followed by a trabecular deposit of fibrin and blood platelets. This results in an adherent, dense, fibrous clot, which undergoes organization with connective tissues; a progressive retraction and obliteration of the vein occurs.

Now the nature of sclerosing drugs may be summarized by citing and commenting on a few. Bichloride of mercury was one of the first drugs used but has been given up because of the serious sloughing and severe toxicity of the drug. Sodium chloride is still in use in some clinics but has been abandoned by most physicians in private cases. There were severe cramps following the injections, also marked sloughing and other disadvantages. Sodium salicylate injection, introduced by Sicard, is used extensively in France. The usual treatment consists of 5 to 10 c.c. of 20 per cent, or 2 to 6 c.c. of the 25 to 40 per cent aqueous solution. There is pain—a burning pain in this method. If injected outside of the vein, by accident, sloughing occurs from this and other drugs. Sugar solutions are most popular and the safest. They cause little pain and are non-toxic and non-sloughing. Painful perivenitis rarely occurs. Invert sugar, the natural chemical combination of equal parts of dextrose and levulose with 3 to 5 per cent sucrose, resulting from hydrolysis of cane sugar, says Logefeil, is the favorite solution now employed. Nobl has popularized its use and reports success in over 10,000 injections without a fatality. In Europe, the solution is dispensed under the name of calorose, and in America is known as invert sugar and dispensed in 10 c.c. sterile ampoules. The latter is in strength of 50, 60 and 70 per cent. Logefeil used 50 to 60 per cent invertose routinely. More recently, he has used a preparation known as invertose compound.

One may read with interest the reports and the publications on this subject. References in Logefeil's paper give one a wide range for following the progress of the treatment in this country and abroad. Practitioners proposing to undertake the study of the treatment may do well to pursue the publications herein noted.*

The technic of injection should be carefully planned and conducted. Experience begets safety and success. Learning by adherence to a well tried plan secures a higher degree of success. Logefeil gives several general rules that have been made as a result of his large experience. Large varices, he states, especially if long, should be injected first at the lowest point; never inject higher than the middle of the thigh. Varices of large size over the calf of the leg tend to develop perivenitis if a strong caustic solution is used, especially in large amounts. In ulceration, injection of "feeders" should come first. In large varices, 2 to 3 minums of sterile 1-1000 adrenalin solution to 20 c.c. of the strong invert sugar solution (60-70 per cent) is used.

The purpose of the technic is to get the solution in contact with the intima with the least dilution of blood. The patient should stand in order to mark the site of the distended veins; a rubber tourniquet is now applied above the points marked. Patient now lies on the table and skin is sterilized; a sharp sterile needle (18 to 24 gauge) is used for aspirating the blood and the blood is carefully "milked" from the vein for a few centimeters above and below the needle. Being sure that the needle is still in the vein, the solution (invert sugar solution) is injected slowly. From this brief and incomplete description, physicians who are not familiar with the technic may see the nature of the administration; while not difficult, it should be performed only after thorough study

*Logefeil. **Amer. Jour. Med. Sciences**, May, 1930, page 619.
McPheeters & Rice. **J. A. M. A.**, October 13, 1928, page 1090.

of the whole question and should be carried out along lines accepted as successful and safe. These conditions may be found in the study of such well presented papers as Logefeil who gives a summary of his observations in 500 cases and after administering the injection 5,000 times. Experience of such an operator may be wisely followed by the beginner.

News Notes

Resolutions Governing Program for Norfolk Meeting of State Society.

1. That at the next meeting the report of the House of Delegates be made at noon on Thursday, October 23, after which the meeting shall adjourn finally to an oyster roast;

2. That the clinics to be given on Tuesday afternoon, October 21, be divided into three (3) groups, conducted simultaneously, at different locations, and that notice of the place and time of the clinics be published in the "Monthly" in advance for the information of members;

3. That notices be sent to members, inviting them to submit titles of "voluntary" papers to be placed on the program, but that no paper be accepted unless the title with an abstract of the paper of 150 to 200 words, be sent to the Secretary by September 1;

4. That if the number of titles, with abstracts submitted, be in excess of the number necessary to make up a program, such additional titles of papers appear in the program to be read by title.

The above resolutions, governing the program for the next meeting of our State Society in Norfolk, were adopted unanimously at a joint meeting of the committees on Publication and Program and on Scientific Work and Clinics, held on April 25th. The minutes of this meeting appear on page 189 of this issue of the MONTHLY.

Medical College of Virginia Finals.

The Medical College of Virginia held its ninety-second Commencement Exercises May 31st to June 3rd, inclusive, in Richmond. These included the four schools of medicine, dentistry, pharmacy and nursing, with a total of about 200 graduates. The events started with Student Night on Saturday, May 31st, with dramatics in John Marshall High School Auditorium. The Commencement Sermon was on Sunday evening, by Rev. J. J. Scherer, Jr., D. D., at the First English Evangelical Lutheran Church.

Registration for the Alumni meeting began early Monday morning, June 2nd, and the Association held a business and scientific meeting in McGuire Hall of the College, starting at 10:30 A. M. A feature of this commencement was the unveiling at 1:00 P. M., of a bronze tablet in the Egyptian Building of the College —a gift of the Alumni Association—commemorating the distinguished service rendered the College and the medical profession by a small group of physicians, who eighty-five years ago made possible the erection of this, the oldest of the buildings connected with the College. This building was completed in 1845 and has been used continuously since that time. For a few years previous to the completion of this building, the College has been conducted in an old building which formerly stood at Main and Nineteenth Streets. A buffet luncheon to the Board of Visitors, Alumni, and Senior Classes, at Cabaniss Hall, followed these exercises. The Board of Visitors held a meeting in the afternoon, and at the same time there was a golf tournament between members of the faculty and the alumni. These were followed by the annual Alumni Dinner at Commonwealth Club.

The Final Exercises for this session were held at 3:30 P. M., Tuesday, June 3rd, at the Mosque Theatre. The principal address at this time was delivered by Dr. George E. Vincent, retiring president of the Rockefeller Foundation. On this occasion, diplomas were presented graduates in the various departments and hospital appointments for graduates in medicine were announced. The annual reception and dance in honor of the graduating classes was held at Commonwealth Club, commencing at 9 P. M., that evening.

There were ninety-five graduates in medicine, Hospital appointments announced at this time were as follows:

MEMORIAL HOSPITAL, RICHMOND, VA.—Drs. Harry Gains Butler, Culpeper; James Glenn Cox, Dugspur; John Wyatt Davis, Jr., Lynchburg; Frederick Oliver Fay, Richmond; Kester St. Clair Freeman, Hanover; Louise Fry Galvin, Richmond; Shockley De Witt Gardner, Goldsboro, N. C.; Thomas Lorimer Gemmill, Amburg; David Lemuel Harrell, Jr., Suffolk; William Thomas Pugh, Madisonville; Samuel Leonidas Rucker, Jr., Moneta; Claude Ernest Simons, Colerain, N. C.; Clinton Howard Whitehurst, Norfolk; Edward Holloway Williams, Rich-

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mond; and Julian Howard Yeatman, Nomini Grove.

JOHNSTON-WILLIS HOSPITAL, RICHMOND, VA.—Drs. Ben Halsey Knight, Norfolk; Harold Lee Riley, Jr., Greenville, S. C.; and Kennon Christian Walden, Richmond.

STUART CIRCLE HOSPITAL, RICHMOND, VA.—Drs. Walter Silas Lawrence McMann, Danville; Leslie Emerson Morrissette, Richmond; and Herman Montague Richardson, Richmond.

ST. LUKE'S HOSPITAL, RICHMOND, VA.—Drs. Ernest Nicholas Phillips, Dalton, N. C.; and James Newton Williams, Richmond.

TUCKER SANATORIUM, RICHMOND, VA.—Dr. Marsh McCall, Tazewell.

ST. ELIZABETH'S HOSPITAL, RICHMOND, VA.—Dr. Paul Thomas McBee, Bakersville, N. C.

JOHNSTON MEMORIAL HOSPITAL, ABINGDON, VA.—Dr. William Guy Justis, Richmond.

U. S. MARINE HOSPITAL, NORFOLK, VA.—Drs. Llewllyn Lee Ashburn, Gonyon; and Robert Samuel Jacobs, Norfolk.

ST. VINCENT'S HOSPITAL, NORFOLK, VA.—Drs. Macon Foscue Brock, Trenton, N. C.; Herman Frank Oppleman, Richmond; and Frank Francis Ramey, Richmond.

PROTESTANT HOSPITAL, NORFOLK, VA.—Drs. Wilbert Enoch Butler, Richmond; and Samuel Byron Pope, Jr., Norfolk.

U. S. NAVAL HOSPITAL, NORFOLK, VA.—Dr. Julius Cherry Early, Jr., Aulander, N. C.

LEWIS GALE HOSPITAL, ROANOKE, VA.—Drs. Ulus Walter Massie, Spanishburg, W. Va.; and George Edmund Stone, Bedford.

YOUNGSTOWN HOSPITAL ASSOCIATION, YOUNGSTOWN, OHIO—Dr. Harold Bay Ashworth, Moundsville, W. Va.

BALTIMORE CITY HOSPITAL, BALTIMORE, MD.—Drs. Erwin Saul Berlin, Norfolk; and William Newcomer, Hagerstown, Md.

CUMBERLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Aaron Wilson Brown, Rochester, Pa.

UNIVERSITY OF PENNSYLVANIA HOSPITAL, PHILADELPHIA, PA.—Drs. Calvin Howard Cain, Ettricks; Harold Joseph Harris, Wilkes-Barre, Pa.; and Thornton Seymore Jennings, Richmond.

MOUNTAIN STATE HOSPITAL, CHARLESTON, W. VA.—Dr. Harry Boggers Arnold Carney, Charleston, W. Va.

WALTER REED HOSPITAL, WASHINGTON, D. C.—Drs. John Randolph Copenhaver, Marion; James Lawrence Hager, Charleston, W. Va.; William Clarence Knott, Burlington, N. C.; and Edward Miller Sager, Petersburg.

GEORGIA BAPTIST HOSPITAL, ATLANTA, GA.—Drs. Cylde Crawford, Atlanta, Ga.; and Earl Van Tucker, Grifton, N. C.

GALLINGER HOSPITAL, WASHINGTON, D. C.—Drs. Edwin Stanton Crisp, Washington, D. C.; and Richard Edgar Dunkley, Stuart.

WHITE CROSS HOSPITAL, COLUMBUS, OHIO—Dr. Claude McClintic Dunlap, South Charleston, W. Va.

U. S. MARINE HOSPITAL, NEW ORLEANS, LA.—Drs. William Sterling Dosher, Southport, N. C.; Marion Kirwan King, Haynesville; and Elbert Terrill Montgomery, Richmond.

WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Drs. Van Mashburn Ellis, Durham, N. C.; and Emmett Vynston Richardson, Marion.

JAMES M. JACKSON MEMORIAL HOSPITAL, MIAMI, FLA.—Dr. Enoch Raymond Fenton, Purcellville.

YOUNGSTOWN CITY HOSPITAL, YOUNGSTOWN, OHIO—Dr. Lloyd Henry Gaston, Cumberland, Md.

BEAVER VALLEY HOSPITAL, MARTIN, KY.—Dr. Orris Gearheart, Betsy Layne, Ky.

HENRY FORD HOSPITAL, DETROIT, MICH.—Dr. James Roby Gudger, Davidson, N. C.

C. & O. HOSPITAL, HUNTINGTON, W. VA.—Drs. Ivan Richmond Harwood, Huntington, W. Va.; Edwin Jacob Humphrey, Jr., Belleville, W. Va.; and Paul Dorsey Ketchum, Wayne, W. Va.

RIVER CREST SANATORIUM, ASTORIA, LONG ISLAND, N. Y.—Dr. John Cramer Kindred, Astoria, N. Y.

CITY MEMORIAL HOSPITAL, WINSTON-SALEM, N. C.—Drs. Clifford Whitefield Lewis, Beaufort, N. C.; and Elmer Richard Moorman, Roanoke.

PROVIDENCE HOSPITAL, WASHINGTON, D. C.—Drs. Joseph Raymond B. Hutchinson, Washington, D. C.; and Delbert Thornton Saffer, Aldie.

WATTS HOSPITAL, DURHAM, N. C.—Dr. Lonnie Carl Liles, Wendell, N. C.

E. A. HORTON MEMORIAL HOSPITAL, MIDDLETOWN, N. Y.—Dr. John Thorpe Metcalf, Roanoke.

MERCY HOSPITAL, ALTOONA, PA.—Dr. Mary Mackey Miller, Portsmouth.

CONENAUGH VALLEY MEMORIAL HOSPITAL, JOHNSTOWN, PA.—Dr. Sigmund Newman, Richmond.

UNIVERSITY HOSPITAL, ANN ARBOR, MICH.—Dr. Zenas Barnard Noon, Nogales, Ariz.

State Prison Hospital, Raleigh, N. C.—Dr. Joseph Evans Osborne, Shelby, N. C.

St. Elizabeth's Hospital, Washington, D. C.—Drs. James Brooke Pettis, Richmond; Edward Franklin Reaser, Huntington, W. Va.; and Orin Ross Yost, Kimball, W. Va.

Beckley Hospital, Beckley, W. Va.—Dr. Matthew Murrill Ralsten, Charleston, W. Va.

Glenwood Park Sanatorium, Greensboro, N. C.—Dr. Robert Stuart Roberson, Greensboro, N. C.

Davis Hospital, Statesville, N. C.—Dr. Lloyd Roosevelt Shaw, Harmony, N. C.

Ohio Valley Hospital, Wheeling, W. Va.—Dr. Carl Fritz Shelton, Logan, W. Va.

North Carolina Baptist Hospital, Columbia, N. C.—Dr. Charles Gordon Spivey, Asheville, N. C.

Erlanger Hospital, Chattanooga, Tenn.—Dr. William George Stephenson, Chattanooga, Tenn.

Grasslands Hospital, Westchester County, N. Y.—Dr. Meyer Vitsky, Richmond.

Kings County Hospital, Brooklyn, N. Y.—Dr. Hugh Alfred Watson, Boone, N. C.

Sinai Hospital, Baltimore, Md.—Dr. Louis Ervine Wice, Petersburg.

Pennsylvania Hospital, Philadelphia, Pa.—Dr. Ennion Skelton Williams, Richmond.

Highsmith Hospital, Fayetteville, N. C.—Dr. Stephen Glenn Wilson, Newton Grove, N. C.

Charleston General Hospital, Charleston, W. Va.—Dr. John Breckenridge Woodville, Jr., Lansing, W. Va.

Other members of the graduating class in medicine are:

Dr. John William Levis, Chicago, Ill.

Dr. James Stanley Liverman, Woodland, N. C.

Dr. Harry Eugene Macdonald, Jr., Bangor, Maine.

Dr. Nathan William Newman, Richmond.

State Society Meeting.

Arrangements are proceeding splendidly for the sixty-first annual meeting of the Medical Society of Virginia in Norfolk, October 21st, 22nd and 23rd. In planning vacations, members are urged to save time to attend this meeting, as it promises much of interest. Dr. Charles R. Grandy, of Norfolk, is this year's president, and has invited Dr. W. S. Thayer, Baltimore, and Dr. David Lyman, New Haven, Conn., to present special papers at this meeting.

The local committee of arrangements is as follows:

Dr. W. L. Harris, Chairman.
Dr. R. L. Payne, Scientific Exhibits.
Dr. F. C. Rinker, Commercial Exhibits.
Dr. E. T. Hargrave, Finances.
Dr. Claiborne Willcox, Automobiles.
Dr. E. C. S. Taliaferro, Golf.
Dr. F. H. Redwood, Entertainment.
Dr. S. B. Whitlock, Hotels.
Mrs. W. P. McDowell, Ladies.

Requests were recently sent presidents of the various component societies, to appoint or elect delegates and alternates, so we trust each local society will arrange to have full representation in the House of Delegates.

Mental Hygiene Congress.

The First International Congress on Mental Hygiene, held in Washington, D. C., May 5th to 10th, was, as had been anticipated, a successful achievement in the promotion of the mental hygiene movement in this country and throughout the rest of the world. It would be a mere gesture to attempt to give in these notes an outline of the work of the Congress or even to mention the various phases of mental hygiene presented by the large number of eminent psychiatrists and mental hygienists there from this country and the fifty-three other countries represented on the program. In previous recent issues of the Virginia Medical Monthly brief mention indicated the subjects that would be discussed at the Congress.

Reports by personal representatives from the United States, Great Britain, Canada, France, Germany, Italy, Japan, Switzerland, South American countries, and every other country advanced in scientific accomplishments, and some that were not so advanced, gave an intelligent conception of the status of mental hygiene and psychiatry in these respective countries. On these reports, the discussions and the formal addresses was found a basis on which to formulate the activities of mental hygiene in the future. Before the opening of the Congress all the principal papers had been printed and were distributed to the members so as to give each one an opportunity to read any given paper before it was presented. Discussion was thereby made more valuable. The proceedings will be published and distributed

to members of the Congress and will, of course, be available to others. The work will be a voluminous and valuable store-house of knowledge of mental hygiene furnished by some of the most eminent authorities of the world. The exhibit room at the Congress gave some idea of the enormous literature on mental hygiene already published and available, especially through the National Committee on Mental Hygiene under whose auspices the Congress was organized and so well conducted.

The next International Congress on Mental Hygiene will be held three years hence in Paris. During the Congress the twenty-second anniversary of the founding of the first mental hygiene society in the world—the Connecticut State Society—was celebrated by the organization of the First International Committee for Mental Hygiene. The charter members of the new organization were drawn from the countries whose representatives took part in the Congress. This new organization is another effort in the prevention of mental disease and in constructive mental health. Another chapter in mental hygiene has been written. More history of modern psychiatry, medicine and human welfare has been made.

Stating it in a general way, the main objectives of the Congress were to collect information from various reliable sources and give the world the benefit of it, to concentrate every possible effort on the prevention of mental disorders of every grade and kind, and to promote the highest order of medical and nursing service for the mentally sick, and to point the way to the attainment and maintenance of the highest possible standard of mental health.

The Congress will, no doubt, result in further stimulating interest and activity in every part of the wide field of mental hygiene throughout this country, including, of course, our own state.

W. F. D.

Doctors Attend Post-Graduate Clinics at Virginia Medical Schools.

A large number of doctors from all over Virginia and adjoining states attended the post-graduate clinics held by the University of Virginia, Department of Medicine, and the Medical College of Virginia, last month, in conjunction with the Department of Clinical Education of the State Society. Clinics were held at each school and demonstrations were given covering many branches of medicine and surgery.

Those registering for the clinics at the University of Virginia, May 1st-3rd, are:

Drs. Bernard Barrow, R. 5, Blackstone; C. D. Bennett, Chatham; C. D. Barksdale, Sutherlin; A. C. Byers, Harrisonburg; H. L. Baptist, Ivy Depot; J. N. Barney, Fredericksburg; D. P. Bowman, Crimora; E. M. Chitwood, Wytheville; J. R. Chitwood, Ivanhoe; John E. Cole, Fredericksburg; N. M. Canter, Harrisonburg; J. C. Coulter, Charlottesville; W. O. Cox, St. Paul; E. A. Pole, Hot Springs; E. D. Davis, Standardsville; W. B. Fowlkes, Danville; Chas. M. Fox, Monterey; Chas. R. Grandy, Norfolk; R. N. Garnett, Danville; S. E. Gunn, Hopewell; D. T. Gochenour, Stuarts Draft; J. C. Harshbarger, Harrisonburg; Percy Harris, Scottsville; H. T. Hawkins, Waynesboro, L. F. James, Richmond; E. C. Kidd, Lovington; W. L. Kabler, Lynchburg; W. A. Kyger, Free Union; J. J. Neal, Danville; J. A. Owen, Turbeville; R. L. Page, Batesville; M. J. Payne, Saunton; T. E. Patterson, Ransoms; H. W. Porter, Louisa; Llewellyn Powell, Alexandria; B. F. Randolph, Roseland; Alex. F. Robertson, Staunton; B. A. Rice, Forest; J. L. Rawls, Suffolk; H. S. Shelton, Culpeper; T. W. Sims, Eheart; W. A. Smith, Altavista; W. O. Smith, Altavista; B. E. Strode, Richmond; R. M. Shelton, Unionville; S. W. Selden, Kents Store; J. W. R. Smith, Charlottesville; J. R. Shacklett, Harrisonburg; F. L. Thurman, Buena Vista; J. B. Tuttle, Craigsville; J. F. Thaxton, Tye River; Lee Taliaferro, Madison Mills; F. A. Ward, Suffolk; R. A. Warren, Hot Springs; F. J. Wright, Petersburg; O. R. Yates, Suffolk, and J. B. Banks, Charleston, W. Va.

Those registered for the Clinics at the Medical College of Virginia, May 13th-14th, are:

Virginia: Drs. D. C. Boatwright, Marion; G. B. Barrow, Stauton; Bernard Barrow, R. 5, Blackstone; J. C. Blanton, R. 5, Richmond; R. D. Bates, Newtown; Major Allen J. Black, Richmond; B. L. Carleton, Newport News; Clarence Campbell, Sparta; E. C. Cobb, Ruther Glen; R. M. DeHart, Floyd; W. F. Drewry, Richmond; R. H. Fuller, South Boston; C. E. Foley, Front Royal; J. D. Hagood, Clover; H. H. Hill, Madison; R. L. Hillman, Emory; L. C. Haynes, Mt. Jackson; F. M. Howell, Hopewell; R. L. Hudnall, Beverlyville; R. T. Hawks, Carson; John S. Horsley, Jr., Richmond; L. H. Hoover, Clarksville;

M. A. Johnson, Jr., Roanoke; L. F. James, Richmond; Chas. H. Lupton, Norfolk; F. H. Lee, Richmond; John A. B. Lowry, Crewe; C. F. Manges, Blacksburg; Hunter McGuire, Winchester; E. B. Nuckols, Cumberland; W. M. Phipps, Hopewell; E. W. Perkins, Petersburg; H. Ward Randolph, Richmond; G. H. Reese, Petersburg; J. M. Shackelford, Martinsville; J. B. Tuttle, Craigsville; Chas. R. Woolwine, Jr., Blacksburg; R. M. Wilson, Richmond; J. J. Waff, Shenandoah; Carrington Williams, Richmond; W. R. Warriner, Crewe; F. J. Wright, Petersburg; E. W. Young, Petersburg.

West Virginia: Drs. W. P. Bittinger, Summerlee; V. T. Churchman, Jr., Charleston; A. D. Ferrell, Ronceverte; P. P. Pharr, Hinton; S. W. Price, Scarborough; A. B. Spahr, New Hall.

North Carolina: Drs. E. S. Boice, Rocky Mount; J. S. Bradsher, Stovall; Rigdon Dees, Greensboro; R. B. Groves, Lowell; Alex. H. McLeod, Aberdeen; J. W. Wilkins, Mt. Olive.

Maryland: Dr. Henry S. Wailes, Salisbury.

Minnsota: Dr. William J. Mayo, Rochester.

University of Virginia Medical News.

Dr. Frank A. Stahl, retired obstetrician of Chicago, visited the Medical School on May 19th.

At the recent meeting of the American Association of Anatomists, Dr. H. E. Jordan was elected the Association's representative on the Commission for the Standardization of Biological Stains.

Dr. E. P. Lehman, Professor of Surgery and Gynecology, addressed the Tri-State Society of Ohio, Kentucky and West Virginia, meeting at Huntington, W. Va., on May 15th, on the subject of "Our Changing Conception of Inflammatory Disease of the Gall-Bladder."

Dr. C. C. Speidel, Associate Professor of Anatomy, was awarded the President and Visitor's Research Prize of $100.00, at the annual initiation exercises of the Society of Sigma XI, on May 16th. The subject of Dr. Speidel's publication is "Studies of Hyperthyroidism, VI. Regeneration Phenomena in Thyroid Treated Amphibian Larvae."

Dr. Dudley C. Smith, Associate Professor of Dermatology and Syphilology, was one of the two faculty members initiated into the Sigma XI honorary scientific fraternity on May 17th.

On May 25th and 26th, Dr. H. E. Jordan, Professor of Histology and Embryology, attended the meetings of the Advisory Board of the Wistar Institute of Anatomy in Philadelphia, in his capacity of Associate Editor of the *Journal of Morphology and Physiology.*

At the recent meeting of the Virginia Academy of Science in Lynchburg, Drs. H. E. Jordan and C. C. Speidel were awarded the Academy's Annual Research Prize of $50.00 for their joint paper on "Blood Formation in the African Lung Fish."

Dr. C. C. Speidel will represent the Medical School at the Second International Congress of Anatomists, meeting in Amsterdam the middle of August. He will read a paper before the Congress prepared jointly with Dr. H. E. Jordan.

Mr. C. P. Loranz, Secretary-Manager of the Southern Medical Association, visited the University on May 12th.

Dr. Fletcher Woodward, Associate Professor of Otolaryngology, was elected President of the Virginia Society of Otolaryngology and Ophthalmology at the meeting in Roanoke on May 3rd. On May 27th to 29th Dr. Woodward attended the meetings of the American Bronchoscopic Society and the American Rhinological, Laryngological and Otological Society at Atlantic City.

Dr. Bayard Carter, Associate Professor of Obstetrics and Gynecology, and Dr. W. W. Waddell, Assistant Professor of Pediatrics, read papers before the meeting of the Piedmont Medical Society at Madison on May 16th. Dr. Waddell's subject was "Diarrhea in Children." Dr. Carter spoke on recent developments in obstetrics. Dr. W. E. Bray, Professor of Clinical Pathology, was re-elected Secretary-Treasurer of the Society.

Dr. Chester Jones, of the Harvard Medical Faculty and a member of the Visiting Staff of the Massachusetts General Hospital, of Boston, recently spent several days at the University. On Friday morning, May 9th, he conducted a clinic for the fourth year medical

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students, at which he demonstrated and discussed several cases with gastro-enterological difficulties.

On May 12th Dr. Henry B. Richardson, of the Russell Sage Institute and Associate Professor of Medicine at New York University, visited the Medical School. He addressed the first year class on the subject of "Metabolism of the Tubercle Bacillus."

On Saturday, May 24th, the Baltimore-Washington Dermatological Society held a meeting at the University. The program consisted of a clinic, an address by Dr. Wiedman, Professor of Cutaneous Research at the University of Pennsylvania, and a dinner at the Farmington Country Club. Dr. Wiedman spoke on the "Clinico-Pathological Aspects of Dermatophytosis."

The John Phillips Memorial Prize.

The American College of Physicians announces the John Phillips Memorial Prize of $1,500.00, to be awarded for the most meritorious contribution in Internal Medicine and Sciences contributing thereto, under the following conditions:

(1) The contribution must be submitted in the form of a thesis or dissertation based upon published or unpublished original work.

(2) It must be mailed on or before August 31, 1930, to the Executive Secretary of the American College of Physicians, Mr. E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa.

(3) The thesis or dissertation must be in the English language, in triplicate, in typewritten or printed form, and the work upon which it is based must have been done in whole or in part in the United States or Canada.

(4) The recipient of the prize would be expected to read the essay at the next Annual Meeting of the College, after which he would be officially presented with the prize by the President.

(5) The College reserves the right to make no award of the prize if a sufficiently meritorious piece of work has not been received.

(6) The announcement of the Prize winner will be made not later than two months before the Annual Meeting.

This prize has been founded by the College as a memorial to Dr. John Phillips, for many years a regent of the Colleege, and always interested in stimulating medical research. He met his death in the Cleveland Clinic disaster, last year.

Veterans' Hospital at Fort Lyon, Colorado, Has Place for Specialist in Pathology.

The United States Civil Service Commission has announced that the Veterans' Bureau Hospital at Fort Lyon, Colo., is in need of a medical officer to serve as specialist in pathology. Those who are interested should write to the United States Civil Service Commission, Washington, D. C., or to the Secretary of the Thirteenth United States Civil Service District, Denver, Colo., and ask for examination announcement No. 51 and application blanks Nos. 2600 and 2398.

In addition to the above, the U. S. Civil Service Commission, Washington, D. C., announces open competitive examination for associate medical officer (pathology), applications to be rated as received by the Commission, until June 30th.

Aubrey H. Straus,

Consulting bacteriologist, announces the removal of his private laboratory to larger quarters, at 616 West Grace Street, Richmond, Va. He and his staff are prepared to handle all types of bacteriological work, and give day and night service.

Do You Know Your Pap-Spoons?

This year, Mead Johnson & Company's exhibit at Detroit will feature a unique exhibit of historical interest to every physician who has a baby or who feeds babies.

Through the courtesy of Dr. T. G. H. Drake, of the University of Toronto, there will be an exhibit of ancient feeding spoons, jugs, boats and nursing bottles, some of which date back to 500 B. C., gathered from various parts of the world.

At the Detroit Session of the A. M. A., June 23rd-27th, please do not fail to inspect this fascinating historical collection, never before exhibited. Booths 292, 293, and 294.

Dr. J. Allison Hodges,

Richmond, president-elect of the Medical Society of Virginia, was the guest of honor at the banquet given by the Virginia State Dental Association during their meeting in Richmond, May 12th-14th.

Playgrounds in Real Estate Subdivisions.

The setting aside of recreation grounds for the use of home owners in new residential de-

velopments has assumed the proportions of a national movement, according to a recent report of the Playground and Recreation Association of America. Nearly 300 subdivisions in 34 States are listed as having established such playgrounds, and nearly 150 others are known to have such areas but were not included with the 300 because of insufficient data. In many cases the grounds have been deeded to municipalities or townships and are free from taxes.

Married.

Dr. Francis Ernest Hinchman and Miss Justina Veronica Koss, both of Richmond, June 3rd.

Dr. Charles E. Cheek, Fuquay Springs, N. C., and Miss Eva Agnes Babcock, Chase City, Va., May 15th.

Dr. George B. Arnold, assistant resident physician at the Virginia State Epileptic Colony, and Miss Frances Williamson, Lynchburg, Va., May 21st. Dr. Arnold graduated from the Medical Department of the University of Virginia in 1927.

Annual Report of National Society for Prevention of Blindness.

A record of steady achievements in the campaign to conserve vision is outlined in the fifteenth annual report of the National Society for the Prevention of Blindness. The report traces the interest of the Society from the general health of the expectant mother, even before the baby's birth, on through successive stages of the child's life until it has been given every opportunity for clear vision which modern science affords.

An increase of forty-five "sight-saving classes" within the last year is also noted. There are now 350 of these classes for the education of children with seriously defective vision in ninety-five cities. The Society estimates that approximately 5,000 such classes are needed in the United States. To train teachers for this work, special courses will be given in the coming summer months at Columbia University, the University of Chicago, the University of Cincinnati, and the State Teachers' College in Buffalo.

Renewed research into the study of trachoma was given through a five year program of investigation started recently by the Medical School of Washington University, St. Louis, and financed by the Commonwealth Fund. The Society also assisted several other agencies in a study of the incidence of trachoma among the Chippewa Indians of Minnesota.

About 725,000 pieces of literature were circulated during 1929, 307 lectures were given, and thirteen radio talks.

Dr. Francis R. Crawford,

Who has been located at Farmville, Va., and has been a member of the staff of the Southside Community Hospital, has gone to China, where he is connected with the Presbyterian Hospital, at Kashing.

Cost of Medical Care.

Seventy dollars per family was the average cost of medical care during a recent six months' period for over 3,000 workingmen's families selected for study from the insured list of the Metropolitan Life Insurance Company. The total expenditure for these families during this period was $230,907. The expenditures for the larger families averaged less per capita than for the smaller families, and one-fifth of the families expended nearly two-thirds of the total.

The Greater New York Committee on Health Examination

Has published in book form the report of the activities and an evaluation of the results of the campaign for health examination conducted by the Greater New York Committee on Health Examination, held October 15th through December 31st, 1929. This report tells the story of the campaign conducted by the Greater New York Committee representing the Five County Medical Societies—how it was planned and executed and covers in detail the various activities. This campaign was the first organized effort on the part of the medical profession in the interest of health examination and proved to be very successful.

Dr. Iago Galdston, 244 Madison Avenue, New York City, is secretary of the Committee.

Doctors Interested in Work on Blind.

In recognition of their work with the blind, Drs. R. H. Courtney, Thos. E. Hughes, Powell Williams, and Emory Hill, all of Richmond, Va., have been elected honorary members of the Richmond Chapter of the Virginia Association of Workers for the Blind.

Dr. Alexander G. Brown, Jr.,

Richmond, Va., was elected a delegate from the Virginia Society to the National convention of the General Society of Colonial Wars, held in Hartford, Conn., May 22nd-24th.

Dr. Lawrence T. Royster,

University, Va., will preside over the meeting of the Association of American Teachers

of the Diseases of Children, which is to hold its twenty-fourth annual convention at Hotel Fort Wayne, Detroit, Mich., June 24th.

How Many Children Have Defective Vision?

Eye trouble was found in one-fifth of nearly 1,000 children from twenty-one kindergartens and nurseries in Manhattan and Brooklyn during a four-year study of the vision of children of preschool age by the National Society for the prevention of Blindness. Twelve of the city's eye specialists gave their services to the society for the study.

Dr. I. R. Wagner,

Member of the Medical Society of Virginia, has been transferred from the U. S. Veterans' Hospital, Tucson, Ariz., to the U. S. Veterans' Hospital, Fort Lyon, Colo., where he is medical officer in charge.

Ice Cream as an Essential in the American Diet.

This fact is forcibly demonstrated by figures published in a bulletin issued by the U. S. Department of Agriculture. It is stated that about 6,000,000,000 pounds of milk are utilized annually in the United States in the commercial manufacture of ice cream which was once regarded as a luxury but which now holds a well-established place in the American diet. In this connection, Dr. E. V. McCollum, of Johns Hopkins University, a leading scientist in nutrition, says, "We have constantly emphasized the importance of drinking more milk . . . The more frequent serving of ice cream at the family table is one of the easiest ways of getting milk into the diet."

Statistics show that the per capita consumption of ice cream in the United States in 1905 was 1.04 gallons, and in 1928 it was 2.9 gallons, or nearly three times as much. In 1927, consumption in nineteen of the states was more than 2.9 gallons per person.

Dr. Holcombe H. Hurt

Has discontinued practice in South Boston, Va., and is resuming his fellowship in surgery at the Mayo Clinic, July the 1st. His family will accompany him to Rochester.

Re-Commissioned to State Board of Medical Examiners.

At the last meeting of the Medical Society of Virginia, the House of Delegates voted to nominate to the Governor, at the proper time, the ten present encumbents representing our Society. Governor Pollard has recently issued commissions to these as follows:

1st District—Dr. J. H. Ayres.
2nd District—Dr. P. St. L. Moncure.
3rd District—Dr. H. U. Stephenson.
4th District—Dr. Fletcher J. Wright.
5th District—Dr. I. C. Harrison.
6th District—Dr. J. W. Preston.
7th District—Dr. P. W. Boyd.
8th District—Dr. Lewis Holladay.
9th District—Dr. F. H. Smith.
10th District—Dr. A. F. Robertson.

Dr. Richard B. Easley,

After several months in Charleston, W. Va., has returned to Richmond, and opened offices at 408 Professional Building. He will limit his work to neurology and psychiatry. Dr. Easley is a member of the class of '26, Medical College of Virginia.

Comparison of Negro With White Infant Mortality.

A report has recently been issued by the U. S. Public Health Service on a study based on negro and white infant mortality rates in the urban and rural areas of a group of Northern and Southern States, in urban and rural Maryland, and in four cities, viz., Richmond, Va., Baltimore, Md., Charleston, S. C., and New Orleans, La.

In every area studied, negro infant mortality rates were higher than the corresponding rates for white infants, this difference being most marked in the urban areas of the South. The lowest negro rates were found in the rural South and the highest in the Southern cities, but, on the whole, infant mortality among the negroes shows trends similar to those shown by infant death rates among the white populations of the same communities. In two cities, Baltimore and Richmond, negro infant mortality has declined more rapidly than that of the white population.

Negro infant death rates are higher than the rates for white infants for every cause except four contagious diseases. Deaths from respiratory diseases, all forms of tuberculosis, and gastro-intestinal diseases were considerably more frequent among negro than among white infant.

Oliver Rea Scholarship Fund.

Practicing physicians of Allegheny County, Pennsylvania, are to be given preference in the award of scholarship aid under the terms of the Oliver Rea Scholarship Fund, according to announcement made last week by the Directors of the New York Post-Graduate Medical School and Hospital, of New York City, which has this fund at its disposal. The

donor of the fund is a Pennsylvanian and, in the original deed of gift, she has specifically petitioned that, other things being equal, priority in the scholarship awards be given physicians from her home county.

The fund is designed to promote advanced medical education and research in the United States, to stimulate and train teachers in medicine and surgery and, in other ways to increase efficiency in the practice of medicine and surgery. There are also to be established scholarships to defray the expense in part or in full, of the tuition of physicians at the New York Post-Graduate Medical School and Hospital and a part of the income is to be used to provide salaries for scientific workers in medicine and surgery, or to establish prizes for valuable contributions to medical literature, or, in any other manner to promote post-graduate education.

This committee specifically charged with the distribution of these scholarship aids consists of Dr. Ludwig Kast, Chairman, Dr. James F. McKernon and Dr. Edward H. Hume, all of New York, and all members of the Board of Directors of the New York Post-Graduate Medical School and Hospital.

Health Care for the Preschool Child in England and Wales.

"It is grossly uneconomic to allow the health and stamina of infants to deteriorate till 5 years old and then to spend large sums of money in trying to cure them between the ages of 5 and 15," says a joint circular to maternity and child-welfare and local education authorities of England and Wales, issued by the Ministry of Health and the Board of Education of Great Britain. Between a fourth and a third of the 5-year-olds entering school each year have been found to need medical attention before they can profit by the education provided for them, largely as a result of neglect after supervision by infant-welfare centers and visiting nurses has ceased. The circular appeals for the provision of systematic health visiting for children between the ages of 2 and 5 years and for their free examination and treatment if the parents cannot afford to pay a private physician.

The American Gynecological Society

Held its annual meeting at Hot Springs, Va., May 19th-21st, under the presidency of Dr. Charles C. Norris, of Philadelphia. The membership of this organization is limited to 115 members. Officers elected for the ensuing year are: President, Dr. William P. Graves, Boston; treasurer. Dr. Fred L. Adair, Chicago; secretary, Dr. Floyd E. Keene, Philadelphia. The two last named officers were re-elected.

Graduate Nurses' Association of Virginia.

The thirtieth anual convention of this Association at Virginia Beach, May 22nd-24th, was the largest in its history. The program covered probably a wider range of topics of general interest than usual to the medical profession and the public. Miss Virginia Thacker, Roanoke, president, presided.

Mental Hygiene constituted one of the prominent features of the prgram, as follows:

"Mental Hygiene in Nursing" by Dr. William F. Drewry, Director, State Bureau of Mental Hygiene, Richmond.

"Psychology in Pediatrics" by Dr. Harvie DeJ. Coghill, Director, Children's Memorial Clinic, Richmond.

"Nursing in Mental and Nervous Diseases" by Miss Louise N. Moss, R. N., Superintendent Westbrook Sanatorium, Richmond.

"Mental Hygiene in Nursing Education" by Dr. Marshall J. Payne, Staunton.

"Mental Hygiene in Convalescence" by Dr. Beverley R. Tucker, Tucker Sanatorium, Richmond.

These papers indicate a desirable increasing interest in a field of activity in which the nurse is an essential factor. One of the speakers at the meeting said that "if there is ever to be material reduction made in mental disorders and a more general building up of positive mental health, and I believe there will be in reasonable time, it will be accomplished mainly by an informed medical profession aided by its natural allies, one of the chief of which is the trained nurse."

The following were elected officers for the current year: President, Miss Emma Harlan, Charlottesville; vice-presidents, Miss Blanche Webb, Norfolk, and Miss Ruth Norton, Norfolk; treasurer, Mrs. Jessie Faris (re-elected), Richmond; secretary, Miss Mary Stillwell (re-elected), Roanoke. The board of directors includes Miss L. L. Odom, Norfolk; Miss Louise M. Oates, University; and Miss Virginia Thacker, Roanoke. The latter replaces Miss Martha Baylor, Roanoke, whose term of office expired.

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Another Orphan Asylum Changes Institutional to Foster-Home Care.

After two years' study and experiment, the Chicago Orphan Asylum has decided to sell its big building which houses 130 children and to find foster homes for the children who come under care, as fast as suitable family homes become available. Five or six scattered units, each caring for not more than 12 children, are to be established, for those who need a period of residence in a controlled environment. Another unit is to be used for the reception of new children and for administrative offices, and still another will care for unadjusted children who need intensive study and training before permanent plans can be made for them.

Dr. Caleb S. Stone, Jr.,

Who has just completed a year as resident on surgery at the University Hospital, University, Va., has taken up his residence in Farmville, Va., where he will limit his work to the practice of surgery. Dr. Stone is a graduate in medicine of the Washington University in St. Louis.

Dr. Micajah Boland,

Commander (M. C.), U. S. Navy, has been transferred from the U. S. S. *Florida* to the U. S. Naval Training Station, Great Lakes, Ill. Dr. Boland is a member of the Medical Society of Virginia and was for a number of years stationed in Virginia waters. He will enter upon his new duties June 1st.

In Memoriam—Dr. Brydon.

The Echo, monthly magazine published by the Bureau of Child Health of the Virginia State Department of Health, has dedicated its May issue to Dr. Mary Evelyn Brydon. The numerous tributes, in this magazine, paid Dr. Brydon and her child welfare work by co-workers and by the various organizations through which and with which she labored, tell only too well the story of her splendid work which has attracted nation-wide attention.

Sixth Pan-American Congress on Child Welfare.

A call has been issued for the assembling of this sixth congress in Lima, Peru, July 4-11, 1930. Dr. Sebastian Lorente, director of health of Peru, is president of the executive committee, and Dr. Carlos Enrique Paz Soldan, professor of hygiene and director of National Child Welfare Institute of Peru, is secretary-general.

Due to the increasing interest in child welfare, this congress promises to be most interesting. The United States is to be represented at the congress.

Dr. Albert E. Wilson,

Norfolk, Va., is one of the candidates for the City Council of Norfolk, Va., and is among those who will come up for election on June 10th.

The Loudoun County Medical Society

Is to hold its next meeting on June 10th, at which time Dr. R. M. Choisser, of the laboratory staff of Dr. Oscar B. Hunter, of Washington, D. C., will address the Society on the cost and practicability of establishing a laboratory for chemical, bacteriological and roentgenological work for the physicians of Loudoun County. Dr. G. F. Simpson, Purcellville, is president, and Dr. William O. Bailey, Leesburg, secretary of this Society.

Dr. Basil B. Jones,

Richmond, Va., has been elected chief of the medical service of the Children's Home Society of Virginia, succeeding Dr. Frank K. Lord, who recently resigned after serving in this capacity for the past ten years.

Dr. W. Ambrose McGee, Richmond, also recently tendered his resignation as pediatrician and supervisor of diet for the children.

Dr. Henry B. Mulholland,

Associate professor of medicine at the University of Virginia, is the only initiate from the faculty elected to membership in the Raven Society of the University of Virginia, this Spring.

The Medical Society of the State of North Carolina

Held its annual meeting at Pinehurst, April 28th-30th, under the presidency of Dr. L. A. Crowell, of Lincolnton. Durham was selected as the next place of meeting and the dates set as April 20th, 21st, and 22nd, 1931. The following officers were elected: President, Dr. J. G. Murphy, Wilmington; president-elect, Dr. M. L. Stevens, Asheville; vice-presidents, Dr. C. A. Julian, Greensboro, and Dr. J. W. Davis, Statesville; secretary-treasurer, Dr. L. B. McBrayer (re-elected), Southern Pines.

The following were elected delegates to the Norfolk meeting of the Medical Society of Virginia: Dr. W. D. Rogers, Warrenton; Dr. William E. Warren, Williamston; Drs. C. B. Williams and W. W. Sawyer, Elizabeth City; Dr. J. F. Nash, St. Paul; Dr. G. E. Newby,

Hertford; Dr. B. C. Willis, Rocky Mount; and Dr. John W. Martin, Roanoke Rapids.

Dr. Reid White, Jr.,

Lexington, Va., has been elected a member of the central council of the Lexington Red Cross chapter for the ensuing year.

New Home for Destitute Crippled Children.

Ground was recently broken for the two units of the Home for Destitute Crippled Children at the University of Chicago, made possible by gifts of $300,000 each by two public-spirited women.

Dr. James A. Wilkins,

For some years of Norfolk, Va., announces his removal to 203 Medical Arts Building, Lynchburg, Va.

The Leslie Dana Gold Medal,

Awarded annually in recognition of the most outstanding work in behalf of prevention of blindness, has just been presented to Dr. George E. de Schweinitz, of Philadelphia, a former president of the American Medical Association and prominent ophthalmologist.

Finding Jobs for the Crippled.

The employment center for the handicapped in New York City receives yearly about 600 new applications for work from young persons under twenty-one years of age. Last year the center placed more than 2,000 adults and children, but could find no jobs for 3,000 others. Applicants who need training are referred to the State Bureau of rehabilitation, the Institute for Crippled and Disabled, and other training organizations.

Spring Conference, Dallas Southern Clinical Society.

A total registration of 1,012 was reached in the Spring Conference of the Dallas Southern Clinical Society at Dallas, Texas, April 14th to 18th, inclusive. The visitors (exclusive of the guest speakers) came from ten southern states, ranging from New Mexico to Virginia. Guest speakers who appeared daily on the program included Drs. Logan Clendening, Kansas City; Geo. W. Crile, Cleveland; Vilray P. Blair, St. Louis; Francis M. Pottenger, Monrovia, Calif.; Frank Hinman, San Francisco; J. L. Morse, Boston; C. L. Scudder, Boston; J. F. Barnhill, Indianapolis; Otto H. Schwarz, St. Louis; C. C. Sturgis, Ann Arbor, Mich.; A. B. Moore, Rochester, Minn.

The general outline of the programs consisted of morning operative and diagnostic clinics in the allied hospitals—Baylor, St. Paul's, Methodist, Parkland, and Bradford Memorial; morning post-graduate hours at the Baker Hotel; Round Table luncheons at noon, in Medical and Surgical groups; general sessions in the afternoon, featuring the distinguished guests; and special events in the evenings. On Monday evening there was a meeting open to the general public; Tuesday, "Get Together" Smoker; Wednesday, combined Alumni and Clinic Dinner, unanimously pronounced an overwhelming success; Thursday, symposium on Syphilis. A golf tournament was enjoyed on Friday. Six different subjects were presented in moving pictures, several with "talkies." Ten scientific exhibits were on display, and all available space for commercial exhibits was occupied.

The 150 members of the Dallas Southern Clinical Society were led in the very successful 1930 Conference by the following officers: President, Dr. Oscar M. Marchman; vice-president, Dr. T. C. Gilbert; treasurer, Dr. G. E. Brereton; secretary, Dr. Curtice Rosser; director of clinics, Dr. J. Shirley Sweeney; other members of executive committee, Dr. H. Leslie Moore, and Dr. J. M. Martin. Officers elected for the ensuing year are: President, Dr. J. M. Martin; vice-president, Dr. J. L. Goforth; treasurer, Dr. G. E. Brereton; secretary, Dr. M. O. Rouse; director of clinics, Dr. J. Shirley Sweeney; other members of executive committee, Drs. Marchman and Gilbert.

Plans are already under way for the 1931 Conference, which will probably be held in March.

Dr. J. Shelton Horsley,

Richmond, Va., by invitation gave the surgical oration before the Mississippi State Medical Association, at its meeting in Vicksburg, May 13th-15th.

Dr. Elizabeth Edmunds,

After several months at the Petersburg (Va.) Hospital, is now at 310 Medico-Dental Building, San Jose, California, where she expects to spend several weeks. Dr. Edmunds is a member of the class of '25, University of Virginia, Department of Medicine, and was located for a short time in Richmond.

Dr. J. Hudson Robinson,

Of the class of '29, Medical College of Virginia, after sometime spent in New York City, has returned to Shinnston, W. Va.

The Southside Virginia Medical Association

Will hold its next regular meeting in Suffolk, Va., June 10th. Dr. J. A. Grizzard, Drewry-

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ville, is president, and Dr. R. L. Raiford, Franklin, secretary.

The American Proctologic Society

Is to hold its thirty-first annual meeting in Buffalo, N. Y., June 22nd-24th, with headquarters at the Statler Hotel. Dr. Walter A. Fansler, Minneapolis, is president, Dr. Curtice Rosser, Dallas, Texas, secretary, and Dr. D. C. McKenney, 461 Linwood Ave., Buffalo, chairman of the local committee of arrangements. Regular practitioners are invited to attend the scientific sessions. On Sunday, the 22nd of June, following registration, a trip has been arranged to Niagara Falls, with stops at various points of interest, returning to Buffalo that night. Late Tuesday evening, following the scientific meeting, members may take the steamer for Detroit, arriving there Wednseday morning for the A. M. A. meeting.

Correction in Radon Advertisement.

Attention is called to an error in the advertisement of the Radon Company as it appeared in our May issue. In giving a description of radon, the first line should have appeared as "Pure Gold (24 Karat)" instead of "4 Karat." This error occurred from some unforeseen reason, although correct in its proof form. We regret the mistake and take this means of trying to correct same.

Dr. Edward V. Valz,

Commander (M. C.), U. S. Navy, member of the Medical Society of Virginia, has been transferred from the U. S. S. *Arkansas* to duty at the Naval Hospital, Parris Island, S. C., effective June 1st.

Detroit Meeting of the A. M. A.

The American Medical Association is to hold its eighty-first annual meeting in Detroit, Mich., June 23rd-27th. Dr. Malcolm L. Harris, Chicago, is president, and Dr. William Gerry Morgan, Washington, D. C., president-elect. The House of Delegates will convene on the 23rd, and the scientific assembly will open with the general meeting on the evening of June 24th.

Delegates from the Medical Society of Virginia to this meeting are Drs. Southgate Leigh, Norfolk, J. W. Preston, Roanoke, and E. G. Williams, Richmond.

Dr. Archer A. Wilson

Has resumed his residency in neuro-surgery on the Hospital Division of the Medical College of Virginia, after several months at the Boston (Mass.) City Hospital. Dr. Wilson is a member of the class of '23, Medical College of Virginia, and was for several years located at Switchback, W. Va.

Attend Rotary Convention.

Drs. George A. Wright, W. H. McCarty, and A. D. Hutton, Marion, Va., were among those attending the Rotary Convention in Richmond, early in May.

Virginia Divorces—1929.

Statistics from the Bureau of Vital Statistics show that there were granted in Virginia for 1929, 3,054 divorces, a gain of 102 over 1928, and the highest number since the period following the World War, 1919-1921. Of the 1929 divorces, the male was plaintiff in 1,059 and the female in 1,995.

The five to nine year period after marriage proved the most prolific for divorces, 1,124 occuring during those five years, while 669 were during the first five.

There has been no noteworthy increase in any county or city.

Amelia County alone furnished no divorces, while Arlington led the counties with 162.

The cities furnishing more than 100 divorces each are: Richmond, 419; Norfolk, 360; Alexandria, 161; Roanoke, 151.

To Head U. S. Food Control Office.

Dr. Ward B. White, of the New York State Bureau of Chemistry, has accepted the position of chief of food control, Food and Drug Administration, U. S. Department of Agriculture, effective June 2nd. This appointment is to fill the vacancy caused by the death of Dr. R. W. Balcom. Dr. White has worked with the New York State Bureau of Chemistry for the last twenty years and has been director of the bureau for the past seven years.

Sarah Leigh Clinic Changes Location.

Drs. Southgate Leigh, James H. Culpepper, Stanley H. Graves, Frederick C. Rinker, Walter P. Adams, Harry Harrison, S. B. Whitlock, and Robt. W. Sturgis, composing the Sarah Leigh Clinic, of Norfolk, Va., announce removal of their offices from 109 College Place to 712 Botetourt Street, adjoining the Sarah Leigh Hospital.

The Pellagra Preventive Action of Canned Salmon.

In connection with studies relating to the pellagra preventive properties of various food substances the United States Public Health Service has recently announced that canned salmon (Alaska chum) contains the pellagra preventive factor. By reason of its potency in preventing pellagra and its availability in

the preserved state, salmon may be considered a fair substitute for meat in the area of pellagra endemicity where meat is not readily available. The demonstration of the pellagra preventive value of canned salmon furnished further evidence of the soundness of the working hypothesis that black tongue in dogs is the analogue of pellagra in man.

Dr. J. F. Alsop

Returned to his home at Prospect, Va., the first of June, after a post-graduate course at Tulane University, New Orleans.

Dr. Joseph L. Miller,

Thomas, W. Va., widely known writer and authority on medical history, was honored with the degree of bachelor of letters by the Medical College of Virginia at its closing exercises on June the 3rd.

Technician Desires Position.

Technician with five years' actual experience in X-ray and laboratory work desires position in clinic or hospital. Graduate in laboratory course at Post-Graduate Hospital and Medical School, Chicago. Address "A. B." care this journal. (*Adv.*)

Intensive Post-Graduate Course.

Professor Georges Portmann will give a five-week, intensive post-graduate course in ear, nose, and throat surgery, at the University of Bordeaux, France, commencing July 21, 1930. This course is open to American physicians.

For information apply to Dr. L. Felderman, Mitten Building, N. W. Cor. Broad and Locust Sts., Philadelphia, Pa. (*Adv.*)

Wanted.

A physician for a rural practice in Northern Virginia, fifty miles from Washington, D. C., in a rich, high, beautiful section with good schools, churches, excellent people and some bad roads. Collections 80 to 95 per cent—excellent territory, with good income.

Please give the following information in your first letter: Age; Married or Single; Number of children, with ages; Where Born? Where Educated? When and where graduated in Medicine? Internship, if any, when and where? Religion of self and wife. Membership in fraternities, clubs, lodges, etc.; Do you hold a license in Virginia?

Address, Box 222, Warrenton, Va. (*Adv.*)

Wanted.

Few younger children for excellent boarding school in Northern Virginia, near Washington, D. C. Girls not over twelve years old. Boys not over eight years old. Enroll now for session beginning September, 1930. Kindergarten. Regular courses. Music. French. Dancing. Apply P. O. Box 222, Warrenton, Va. (*Adv.*)

For Sale.

Eye, Ear, Nose, and Throat equipment. For particulars, write Mrs. George P. McCoy, Monterey, Va. (*Adv.*)

For Sale.

Established practice in nice Virginia town of 5,000 people and good surrounding territory. Hospital service available in town. Excellent opening for man just starting practice. Office in best location in town and well equipped for general practice. Will introduce a new man if he buys at once, $500 cash or terms. Reason—Specializing. Address No. 236, care this journal. (*Adv.*)

Obituary Record

Dr. John William Dillard,

Well-known physician and surgeon of Lynchburg, Va., died at his home in that place, May 17th, after an illness of several weeks with heart disease. Dr. Dillard was born in Nelson County, Virginia, in 1852, and received his medical education at the University of Virginia, from which he received his degree in 1875. He became a member of the Medical Society of Virginia the following year and for some time took an active interest in the meetings, having been twice a vice-president. He was also connected with several other medical organizations and was a Mason, Knight Templar and an Elk. His wife and three children survive him.

Resolutions on Death of Dr. Richard Randolph Nevitte.

We the joint committee appointed from the Accomack Medical Society, the Northampton Medical Society and the Physicians' Journal Club of the Eastern Shore of Virginia, beg to sumbit the following Resolutions of Respect in the death of our colleague, Richard Randolph Nevitte, M. D., of Temperanceville, Va., who died January 17, 1930.

RESOLVED 1st. That in the passing of Dr. Nevitte the "Shore" has lost one of its outstanding physicians,—one whose skill as a physician was only matched by his fluency of speech and bigness of heart.

RESOLVED 2nd. That his fatal illness was contracted in line of duty while alleviating the suffering of mankind, sustaining blood poisoning as a result of a cut received while operating.

RESOLVED 3rd. That his influence for good extended not only in his local surroundings, but also throughout the entire Shore, both professional and in matters pertaining to civic betterment.

RESOLVED 4th. That the joint societies extend to the bereaved family our sincere sympathy, that a copy be mailed the family, spread upon the minutes of the respective societies and also published in the local papers.

JOHN W. ROBERTSON, M. D.,
G. W. HOLLAND, M. D.,
JAMES C. DOUGHTY, M. D.,
Committee.

Resolutions on Death of Dr. J. Garnett Nelson.

The Executive Committee of the Virginia Tuberculosis Association at the first meeting following the death of Dr. John Garnett Nelson, an interested, active, honored and beloved member, in profound sorrow at his untimely death, hereby adopts the following preamble and resolution.

PREAMBLE: Whereas, in the unscrutable workings of Divine Providence our beloved friend and colleague, John Garnett Nelson, has been taken from our midst by the hand of death, and

Whereas, the high qualities of his mind and heart, the informed intelligence and purposeful zeal of his fruitful life were such as to create in all who were privileged to associate with him an affectionate admiration for him as a man, and a profound respect for his opinions and judgments, and

Whereas, the wise, tolerant, experienced and balanced personality of Dr. Nelson is no longer with us to aid in guiding the work of the Association, we, his friends and associates in State Tuberculosis Control work,

RESOLVE: That while we deeply deplore the passing of this great friend and neighbor to all in need, the inspiration of his life and labors, so conspicuous as it was, in a profession normally given to good deeds, will long remain to cheer and inspire our efforts in the field of activity he gave so much of himself to promote.

RESOLVED FURTHER, That we record these sentiments of our hearts upon the minutes of our Committee, and transmit them to the members of Dr. Nelson's family with the assurance of our deep sympathy.

ROY K. FLANNAGAN,
H. LAURIE SMITH.
J. VAUGHAN GARY.

Resolutions on Death of Dr. Brydon.

The Committee of Maternal Welfare of the Medical Society of Virginia has voiced its regret in the passing of Dr. Mary E. Brydon by the following resolutions:

WHEREAS, It has pleased God in his wisdom to remove from our midst, Dr. Mary E. Brydon MacKay, our faithful and efficient secretary;

BE IT RESOLVED, That by her death the Committee of Maternal Welfare of the Medical Society of Virginia has lost a wise counsellor, who gave freely of her time and talents to the end that the lives of mothers and babies of the State of Virginia might be saved.

BE IT FURTHER RESOLVED, That a copy of these resolutions be spread upon the minutes of the committee, a copy be published in the VIRGINIA MEDICAL MONTHLY, and a copy be sent to the bereaved family.

Signed:
GREER BAUGHMAN,
P. W. MILES,
C. B. BOWYER,
RUTH MASON.

April 14, 1930.

Dr. Walter Stith Phillips,

Rapidan, Va., died suddenly March 5th, of heart disease, at the age of sixty. He was a graduate of the University of Maryland, School of Medicine, in 1897.

Dr. Wilfred Mason Barton,

Well-known physician of Washington, D. C., died April 3rd, at the Mayo Clinic, of peritonitis, following an operation. He was fifty-eight years of age and graduated from the Georgetown University School of Medicine in 1892. Dr. Barton was a past president of Medical Society of the District of Columbia and was professor of medicine and applied therapeutics at his alma mater.

Dr. George H. Chewning,

Fredericksburg, Va., died March 20th, at the age of eighty-three years. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1870. Dr. Chewning was also a dentist.

Dr. Charles Duncan Garrett,

Rocky Mount, Va., died March 17th, at the age of twenty-eight. His death was due to tuberculosis. Dr. Garrett was a graduate of the Medical College of Virginia in 1925.

Dr. James Franklin Dicks

Died at his home in Stoneville, N. C., March 23rd, of chronic nephritis. He was fifty-three years of age and a graduate of the University College of Medicine, Richmond, Va., in the class of '01.

Commander Henry Bird Fitts, M. C.,

U. S. Navy, retired, died March 23rd, in Lima, Peru, of arteriosclerosis. He was seventy-one years of age and graduated from the University of Virginia, Department of Medicine, in 1880.

Col. Guy Lewis Edie, M. C.,

U. S. Army, retired, died April 8th, at the Letterman General Hospital, San Francisco, of coronary sclerosis. He was seventy-two years of age and a graduate of the University of Virginia, Department of Medicine, in 1879. Dr. Edie was a veteran of the Spanish-American War.